The Manufacturing and Construction Journal of the Textile Industry

COTTON

Volume 93.
Number Five.
$1.00 a Year.

MARCH, 1929

Published monthly by
W. R. C. Smith Publishing Co.
Dalton and Atlanta, Ga.

HIGH SPEED WARPERS

SECTION BEAM
BALLING
SPECIAL
DIRECT

Warping from Cones

High Speed Section Beam Warpers

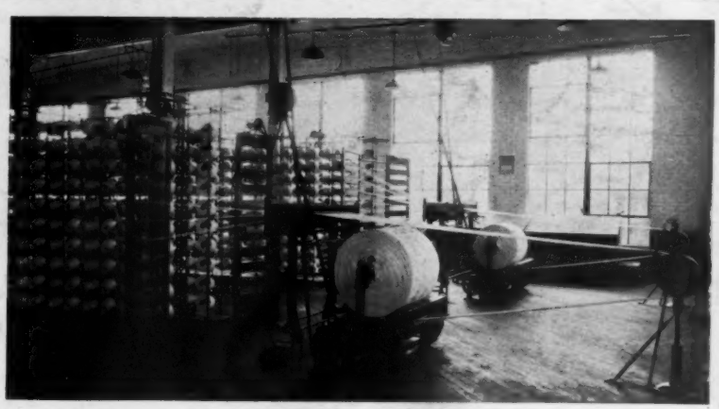
STANDARD WARPERS

SECTION BEAM
BALLING
LINKING
DIRECT

Warping from Spools

WARPERS

WARP WRAPPERS
WARP UNWRAPPERS
WARP SPLITTERS
WARP DOUBLERS
WARP SNAKERS



High Speed Balling Warpers

WARP DYEING MACHINES
WARP SIZEING MACHINES
WARP BEAMING MACHINES
WARP COILER MACHINES
WARP BALLING MACHINES

Specialists in Manufacturing Machinery and Equipment for

MAKING and HANDLING WARPS

COCKER MACHINE & FOUNDRY CO.

GASTONIA, NORTH CAROLINA U. S. A.

Table of Contents, Page 53. Buyers' Index, Page 182. Advertisers' Index, Page 194.

KNITTING SECTION, Page 563

Entered as second-class matter
at the post office, Dalton, Ga.,
Under Act of March 3, 1879.

Mr. A: *"A penny for your thoughts, E. J."*

Mr. B: *"They're not even worth a penny. I've been sitting here all afternoon trying to think up a trademark for that new jobber we sold down in Baltimore."*

Mr. A: *"You're wasting your time. You'd better call up the Kaumagraph Company and turn that job over to their Service Department."*

KAUMAGRAPH'S SERVICE begins with the actual design of the trademark; follows through to its registration and finally to its application on your goods. Sometimes, to meet a particular condition, this has required the development of an entirely new type of Kaumagraph Trademark Transfer. As a result there is today a Kaumagraph Product for every conceivable identification problem in the textile and hosiery industries .... And for your lithographic requirements, consult Kaumagraph's Lithographic Department.

KAUMAGRAPH COMPANY . . . 200 Varick Street . . . New York City

Branches at Boston, Chicago, Philadelphia, Charlotte, N. C., Chattanooga, Tenn., Paris, Ont., Paris, France.

Vol. 93 **COTTON** No. 5

March, 1929

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director ROBERT W. PHILIP, Editor

Contents

General and Technical—

Tariff Hearing Impressions ---- 487
Picked Cotton Versus Snapped and Sledded ---- 488
Weaving Discussion at Spartanburg ---- 491
Using the pH Control in Dyeing ---- 497
Accurate and Time-Saving Mill Calculations ---- 500
Finishing of Linen Cloth and Toweling ---- 503

Current Topics—

Another Description of Cotton ---- 506
President Hoover ---- 506
Some Figures Worth Noting ---- 506
What the Southern Mills are Doing ---- 508
Cotton Comment ---- 510
New England Mill Situation ---- 510
Notes About Men You Know ---- 514
An Old Timer Says ---- 517

How Other Men Manage—

"Some Mill Men I Have Called On" ---- 523
Another Layout for 70s Combed Yarn ---- 529
Where are the Good Section Men? ---- 529
Question on Oiling Rayon ---- 531
Preventing Filling Shelling off in Loom ---- 533
A Method of Counting Warp and Pick ---- 533
High Angle Roll Stands on Spinning ---- 534
Some Belated Answers for "Old Timer" ---- 537
How Some Cotton Mills are Managed ---- 541
Effect of Cotton on Evenness ---- 542
Figuring Average Weave Room Production 543
Some Interesting, Though Delayed, Comments ---- 547
Running Double and Twisted Selvages ---- 549
Cloth Weaving Longer on One Side ---- 551
Preventing Mis-Picks and Shuttle Marks ---- 551

Knitting Section—

Manufacturing Full-Fashioned Hosiery (Article 4) ---- 565
Knitting Arts Exhibition ---- 571
Testing Dyestuffs for Fastness (Part 18—A B C of Dyeing) ---- 572
Operating and Adjusting the Banner Knitting Machine (Part 2) ---- 579
23% Versus 25% Boil-Off Oil ---- 582
Asks How to Use pH Control ---- 582
Making the Pointed Heel on the Model K ---- 585
Disagrees With Tom Smith's Recommendations ---- 587
Using Cone Waste in Underwear ---- 591
Loose Stitches on the B-3 Machine ---- 592
A System of Identifying Hose in Process ---- 592
The Knit Goods Market ---- 595
Among the Knitting Mills ---- 607
The Yarn Market ---- 610

Published Monthly By

W. R. C. SMITH PUBLISHING COMPANY, Grant Bldg., Atlanta, Ga.

Publishers Also of
SOUTHERN POWER JOURNAL
SOUTHERN AUTOMOTIVE DEALER
SOUTHERN HARDWARE
ELECTRICAL SOUTH

Member of
Associated Business Papers, Inc.

Audit Bureau of Circulation

SUBSCRIPTION PRICE, $1.00 PER YEAR; CANADA, $1.50; FOREIGN, $2.00.

When changing address notify us, not the postmaster. Give both old and new address.

The Lofty Spires of Industry

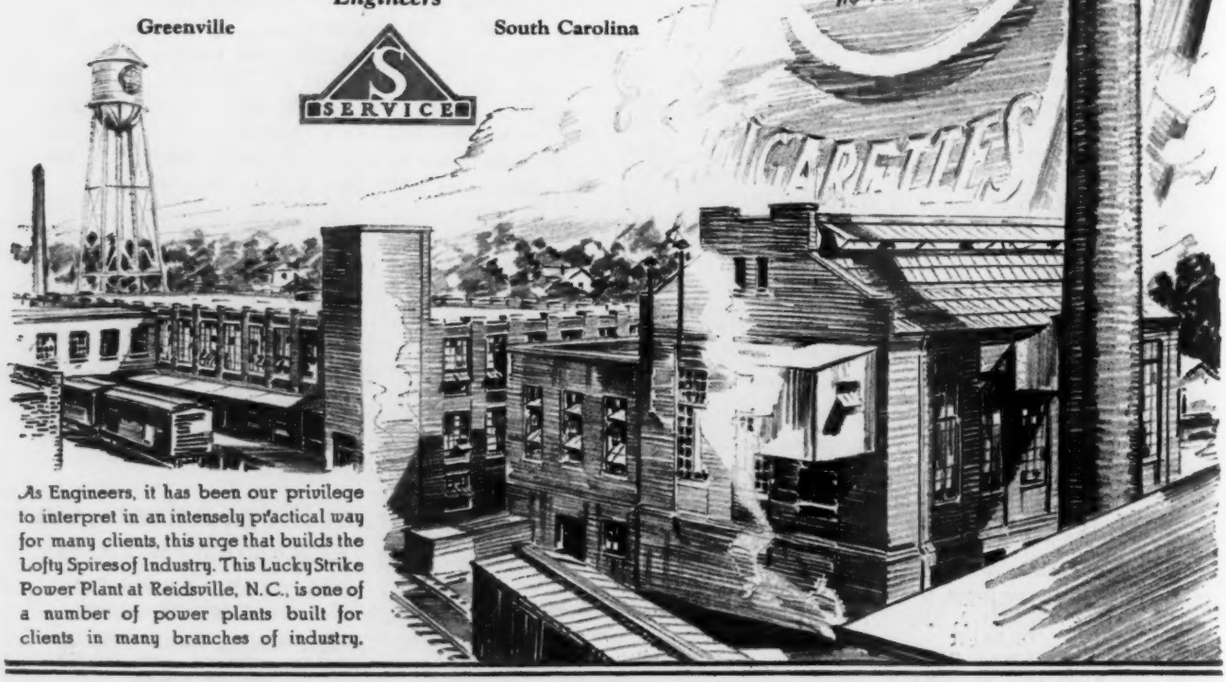
MAN has always symbolized his aspirations in the structures he has reared. Towers and temples, colossal statues and monuments, pyramids, minarets and upreaching church spires—all pointing Heavenward—emblems of man's striving spirit.

Today this urge finds multiplied expression in towering office buildings, stately structures for the ruck of human needs and slender stacks and chimneys penciling their silhouettes against a smokeless sky.

The tons of coal burned under the boilers no longer belch out, half-consumed, from stack tops to dim man's atmosphere.

The power plant of today is a cool, silent place where the engineers, through plan, design and measured operation, have achieved almost complete combustion. Nearly every unit of heat does useful work and only at times does a faint, vaporous plume of smoke play fitfully from Industry's lofty spires.

J. E. SIRRINE & COMPANY
Engineers
Greenville South Carolina



As Engineers, it has been our privilege to interpret in an intensely practical way for many clients, this urge that builds the Lofty Spires of Industry. This Lucky Strike Power Plant at Reidsville, N. C., is one of a number of power plants built for clients in many branches of industry.

ENGINEERING CONSULTANTS ON THE SOUTH

Vol. 93 COTTON No. 5

March 1929

Tariff Hearing Impressions

A DAILY observer at the tariff hearings before the House Ways and Means Committee in Washington reports some impressions which may be interesting. He says:

Excellent cases for need of help were made out by petitioners for many producing industries, but it was not shown in many instances that much help on account of conditions complained of can be procured via higher tariff duties alone.

Developed data showed that over-production, or capacity for it, or under-consumption, accounts more for faults complained of on behalf of most big industries than competitive importations.

The prime basis for nearly all petitions for higher duties were post-war wage levels and desire to maintain them. This was stressed to the point of arousing a suspicion that in many spheres American wage scales are on an artificial and retroactive basis, resulting in curtailment of consumption, with resultant unemployment, that reduce average earnings in extent that cancels much of the apparent benefits adhering to the per hour and day scales.

What is boasted of as American efficiency has been exaggerated if recitals at the hearings are to be given even discounted estimates. It was stated by many petitioners that even mechanical efficiency in many lines of production abroad is equal to corresponding operations in the United States and that in Europe it is advancing rapidly and in some industries there it has leaped ahead of that in this country.

Evidence put forth in the hearings indicate that mass production, with all of its economies, may have certain quite important shortcomings. It tends, it was indicated, to increase the advantages possessed by specialty products made abroad, especially when factors of fashion or design are of first importance to the consumer. Many of the petitions for higher duties were aimed at such specialty products alone.

The impression was inescapable that petitioners on behalf of most of the old manufacturing industries had little hope, under existing or requested conditions, of extending or developing new markets abroad for their products. Several blandly admitted that they had transferred production to lower wage countries for taking care of foreign sales once made directly from the United States.

Spokesmen for agriculture as a whole, while making general statements implying awful conditions, did not present in the concrete sense as good a case as was expected to be made by them. In fact, it was admitted by them that in several lines of agriculture, notably those of cattle, sheep and dairy products, the American farmer is doing very well. The best case was made out for the grain farmers but it was admitted by spokesmen for these that higher tariff duties alone will not be very helpful.

For long-staple cotton farmers in the Mississippi Delta, pleas for duties on Egyptian cotton were made, but it was not proved that these would be advantageous. For short-staple cotton growers, and a number of cotton manufacturers, there were made pleas for jute duties so high as to portend the forcing o f low-grade cotton and goods into channels of jute consumption. This involves a virtually new application of the protective tariff principle and an economic question which can be determined definitely by a test only.

For cotton manufacturers generally the main plea was for higher duties on high count yarn and fabrics. The petitioners in this instance made an excellent showing of comparative efficiency. The requests were not nearly so extravagant as the run of ones for other industries, notably agriculture.

Although prophesy is largely futile, the reporting observer advises against expecting a great deal by way of tariff changes in the near future or of anticipating large benefits form increases, no matter how great, which may be made.

PICKED COTTON *versus* Snapped *and* Sledded

Mill Tests of Breaking Strengths, Waste, Etc., of Staple Harvested by Different Methods

By John T. Wigington*

COTTON has been picked by hand from time immemorial. Owing to a scarcity of labor some years ago, the growers began the practice of pulling the entire boll (including burrs and seed cotton) off by hand in order to salvage a crop which might otherwise be completely lost. Soon after the practice of snapping began, a few farmers in Oklahoma and Texas began to build and use sleds, which proved to be a much faster method of harvesting cotton than either snapping or picking. About three years ago, due to a large crop and an unusual scarcity of labor, both snapping and sledding were resorted to on an extensive scale.

The cotton so harvested, after being ginned, is known as "snapped" and "sledded" cotton. The presence of this cotton in the market has given rise to many discussions concerning both their efficacy and the quality of the cotton handled in accordance with these methods. The purpose of the writer is to present the facts concerning the manufacturing qualities of *picked, snapped and sledded cotton out of the same variety and out of the same field.* A few words descriptive of the cotton sled seem in order here. It is described by Brodell and Cooper, 1/ as follows:

"The cotton sled is simply a wooden box on runners, usually with five or more finger-like attachments of steel or wood of one inch or more in width. . . . Usually the fingers or attachments are placed at a distance of about one inch apart. Some sleds, however, have a V-shaped opening and have but a single groove, which gradually narrows. The stalk passes through the groove, and the bolls, stems, etc., are stripped from it. The first type of sled is suited only for harvesting cotton which is under 30 inches in height, and therefore is the principal type found in the Plains area. The single-groove type is used principally for cotton with a more vigorous plant growth, instances being observed in Oklahoma where this type of sled was used successfully in harvesting cotton 40 to 50 inches in height. . . ."*

*Formerly associated with Government cotton testing project, Clemson College, S. C.

1/Brodell, A. P. and Cooper, M. R.: Requirements and Costs for Picking, Snapping and Sledding Cotton in Western Texas and Oklahoma, U. S. Department of Agriculture, Preliminary Report, June 1927.

(*) For a further description of the methods of snapping and sledding cotton, the sled, samples of snapped and sledded cotton from the field, card strips and roving from sledded cotton, see the article, "Sledded and Snapped Cotton," by Robert W. Philip, COTTON, July 1927.

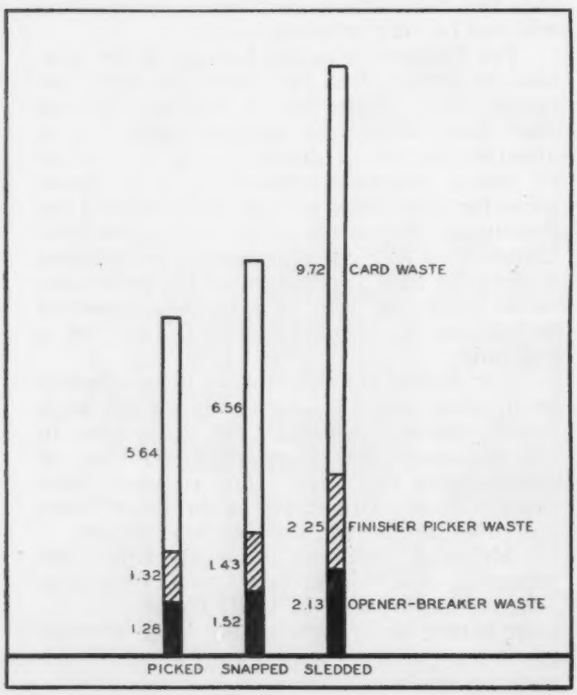


Fig. 1. Showing total visible waste removed from picked, snapped and sledded cotton out of the same variety and out of the same field. (Based on net weight fed to opener.)

Grade and Waste	Percentage of Waste		
	Picked	Snapped	Sledded
Grade	L. M.	L. M.	S. G. O.
	Per cent	Per cent	Per cent
Picker Waste:			
Breaker			
Visible	1.28	1.52	2.13
Invisible	.28	*.06	.41
Finisher			
Visible	1.34	1.45	2.31
Invisible	.00	.32	.41
Card waste:			
Flat strips	2.25	2.51	3.56
Cyl. and doffer strips	1.05	1.03	1.37
Motes and fly	2.14	2.73	4.74
Sweepings	.37	.51	.58
Total Visible	5.81	6.78	10.25
Total Invisible	.34	* .24	* .20
Picker and card waste:[2]			
Total Visible	8.24	9.51	14.10
Total Invisible	.61	.03	.62
	10.27	10.27	12.41

[1] The waste percentage for each cleaning machine is based on the net weight of cotton fed to that particular cleaning machine. The percentage of total visible waste removed by the pickers and cards equals 100 times the sum of the pounds of waste removed by the pickers and cards divided by the net weight fed to the opener-picker. The invisible is figured similarly.

[2] Based on net weight fed to opener. * Invisible gain.

Table 1. Showing the grade and percentage of waste of picked, snapped, and sledded cotton out of the same variety and out of the same field.

The cotton herein described was of the same variety, planted in the same field, harvested on the same day, and ginned with the same equipment, the snapped and sledded cotton having been passed through a boll extractor. It was then manufactured into yarn under similar moisture and mechanical conditions and since the treatment was similar throughout except for the method of harvesting, a comparison of data should reveal to what extent and in what way the cotton was affected by the method of *harvesting.*

The picked, snapped and sledded cotton was processed in the following order: Opened and stored in a bin for 24 hours, passed through a breaker picker (porcupine beater) and through a finisher picker (two-blade beater), cards, two processes of drawing, three processes of roving, and spinning.

Staple and Count of Yarn	New Draper Standard	Twist Multiplier	Average strength of yarn per skein of 120 yards: Picked	Snapped	Sledded
Staple			Inches 1 Pounds	Inches 1 Pounds	Inches 31/32 Pounds
Count	Pounds	Constant			
22s	87	4.25	90.3	89.2	88.6
		4.75	92.3	88.9	86.4
		Av.	91.3	89.1	87.5
28s	69	4.25	67.9	64.6	65.1
		4.75	67.4	67.0	64.3
		Av.	67.7	65.8	64.7
36s	54	4.25	47.9	47.7	46.7
		4.75	48.2	47.1	46.0
		Av.	48.1	47.4	46.4
44s	44	4.25	35.9	35.1	34.0
		4.75	35.6	34.9	34.7
		Av.	35.8	35.0	34.4

Table 2. Average strength of yarn per skein of 120 yards spun from picked, snapped and sledded cotton, by size, or count, of yarn and twist multiplier used 1/

1/ Twenty-five observations were made on each twist. Average strengths of yarn have been corrected to specified sizes, or counts, of yarn by multiplying the average strengths by the average sizes and dividing by the specified counts.

Grade and Staple.

After ginning the cotton and before starting the manufacturing processes, representative samples were taken from the picked, snapped and sledded cotton. The following list shows the classification of the cotton:

Method of Harvesting	Grade	Staple Length (Inches)
Picked	Low Middling	1
Snapped	Low Middling	1
Sledded	Strict Good Ordinary	31/32

The foregoing information shows the picked and snapped cotton to be the same in grade and staple length (Low Middling) whereas, the sledded cotton was one grade lower, Strict Good Ordinary and 31/32 inch in staple length. 2/

In order to find the waste percentage of the picked, snapped and sledded cotton it was necessary to keep accurate records of the weight of stock fed to and delivered by the particular cleaning machine, together with the weight of each type of waste collected. From these data the percentages of waste were determined. (See Table 1 and Figure 1.)

Waste Determination.

Two kinds of waste are noted in recording the data, visible and invisible. Visible waste is that which is actually removed from the cotton in process and can be weighed. Invisible waste occurs by loss to the air of small particles of fiber or by the absorption or giving off of moisture. If the moisture absorbed is of sufficient amount, the net result will be a gain.

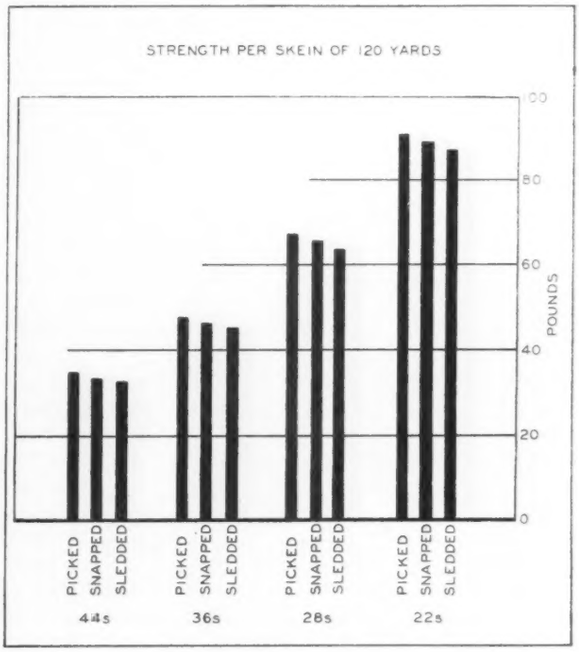


Fig. 2. Average strengths of yarn from picked, snapped and sledded cotton.

Table 1 shows that the difference in total visible waste between the picked and snapped cotton was very small, the percentage of visible waste being 8.24 for the picked and 9.51 for the snapped cotton. The picked and the snapped cotton were both classed as Low Middling. The sledded cotton contained a significantly higher percentage of waste, 14.10 per cent, but was also lower in grade, being Strict Good Ordinary.

Total Visible Waste from Pickers and Cards

Picked	8.24 Per Cent
Snapped	9.51 Per Cent
Sledded	14.10 Per Cent

Yarn Strength.

When testing for breaking strength and size, or count, it has been found by experiment that the average of twenty-five observations will give reliable information; therefore, twenty-five breaks and sizings were made for each number spun.

The picked, snapped and sledded cotton was spun into 22s, 28s, 36s and 44s yarn with twist equal respec-

2/ For further information on grade and staple of picked, snapped and sledded cotton see "Cleaning Low-Grade Cotton" (Texas, Crop 1926) by H. H. Willis, U. S. Department of Agriculture: and "Spinning Tests of Picked and Snapped Cotton" (Texas and Oklahoma, 1925 Crop) by H. H. Willis, U. S. Department of Agriculture.

Kind of Sample	Moisture regain in samples of cotton		
	Picked	Snapped	Sledded
	P. Ct.	P. Ct.	P. Ct.
Raw stock (bale)	7.58	7.24	7.76
Raw stock (bin)	7.32	6.50	7.22
Breaker picker lap	7.47	7.12	7.41
Finisher picker lap	6.84	6.89	6.84
Lap back of card	7.50	6.84	6.87
Card sliver	7.12	7.27	6.70
Drawing sliver	7.10	7.21	6.84
Fine frame roving	7.59	6.92	7.36
Roving in spinning creel	8.71	8.90	9.61
Yarn	9.91	10.31	10.17

Table 4. Percentage of moisture regain in picked, snapped and sledded cotton at different stages of processing 1/

[1] Percentage of regain is based on dry weight of sample.

tively to 4.25 and 4.75 times the square root of the number spun. These yarns were reeled into skeins of 120 yards each and allowed to condition for at least three hours under a relative humidity of approximately 65 per cent at a temperature of 70 degrees F. After conditioning, the skeins were broken on an inclination balance type yarn tester, electrically driven, the pulling arm descending at a uniform rate of 12 inches per minute. The skeins were then sized on a direct yarn numbering quadrant. The corrected average strengths of 25 observations of each twist are listed in Table 2.

Table 2 and Figure 2 show that all the 22s yarn broke above the new Draper standard. The 28s was almost up to standard and the 36s and 44s, slightly below standard. Note the decrease in breaking strength of snapped and sledded cotton as compared with picked cotton.

End Breakage.

End breakage in cotton manufacturing is a very important factor, since the greater the number of broken ends that occur, the fewer the number of spindles that an operative can tend, thus increasing the cost of production. As each size of yarn was spun, an accurate record was kept of the number of ends breaking. For comparative purposes the rate of end breakage has been reduced to a common basis. Table 3 shows the number of ends broken per hundred spindles per hour for each size of yarn spun.

Moisture Content.

In order that the best manufacturing conditions might be obtained, special attention was given to the humidity conditions. It has been found by experiment that a relative humidity of 50 per cent in the picker room, 60 per cent in the card room, and 70 per cent in the spinning room gives satisfactory results. The picked, snapped and sledded cottons were subjected to these relative humidities under automatic controls.

Samples of cotton were taken from the bale, bin, breaker and finisher laps, card lap and sliver, drawing slivers, fine frame roving, roving in spinning creel, and yarn for the picked, snapped, and sledded cotton. These samples were dried in an electrically heated moisture testing oven to a temperature of 220 degrees F., and their percentages of moisture regain were determined. (See Table 4).

Summary.

The following conclusions are drawn from the data as presented in this article:

1. The picked cotton gave the best grade and staple length, showed the smallest percentage of visible waste, and spun into the strongest yarn. However, the average end breakage per hundred spindles per hour was higher than for the snapped cotton, and much lower than for the sledded cotton.

METHOD OF HARVESTING	GRADE	LENGTH OF STAPLE	VISIBLE WASTE	YARN STRENGTH				END BREAKAGE			
				22S	28S	36S	44S	22S	28S	36S	44S
		INCHES	P. CT.	LBS.	LBS	LBS	LBS.	ENDS	ENDS	ENDS	ENDS
Picked	L.M.	1"	8.24	91.3	67.7	48.1	35.8	0.00	0.00	3.33	3.33
Snapped	L.M.	1"	9.51	89.1	65.8	47.4	35.0	0.00	0.00	0.00	1.67
Sledded	S.G.O.	31/32"	14.10	87.5	64.7	46.4	34.4	0.00	8.00	10.34	12.07

Table 3. Grade, length of staple, visible waste, yarn strength and end breakage comparison between picked, snapped and sledded cotton.

2. The snapped cotton was classed the same in grade as the picked cotton, but was slightly lower in staple length. The percentage of visible waste increased and the yarn strength decreased. The average end breakage for the snapped cotton was lower than for the picked or sledded cotton.

3. The sledded cotton was classed one grade lower, was shorter in staple length, and contained more visible waste; and the end breakage was higher during spinning than for either the picked or the snapped cotton.

For a summary of the actual differences in the grade, length of staple, yarn strength, and end breakage, see Table 3.

Valuable WEAVING Discussion Held *at* Spartanburg

Reported by Robert W. Philip

DISCUSSION on a variety of subjects pertaining to weave room practice was held at the meeting of the Weaving Division of the Southern Textile Association, in Spartanburg, S. C., at the Franklin Hotel, on Friday, February 15th. This marked the resumption of the association's practical discussion groups, for 1929.

A good attendance, surprisingly large in the face of inclement weather, was an indication of the increasing interest being manifested in these discussions. W. A. Black, superintendent, Beaumont Mfg. Co., Spartanburg, S. C., is chairman of the weaving division, but the discussion was conducted by E. A. Franks, superintendent, Dunean Mills, Greenville, S. C., who is chairman of the fancy weaving group of the division.

The discussion ranged over no pre-arranged group of questions, but followed along questions submitted prior to and during the meeting, by the men present. The result was that there was a little bit of this, and a little bit of that, shifting from plain to fancy weaving, and back to plain weaving, and so on, but the whole meeting was of an extremely practical and useful character, and all of the discussion was interesting and helpful. A complete report of the discussion will be found in the following paragraphs.

Methods of Cleaning Looms.

THE practical end of the program started off with a discussion of methods of cleaning looms, most of those present indicating the use of the blowing system—cleaning by compressed air—but also indicating a dislike for this method on account of the seconds from oil spots in cloth produced by it. The explanation was that it was the cheaper method to use, but the following discussion may throw some light upon that point.

Chairman Franks asked the question, "What is the best method of cleaning looms, taking into consideration the cost and the quality of the cloth?" W. L. Shippey, overseer of weaving at the Spartan Mills, Spartanburg, S. C., replied that "I do not know the *best* method, but I can tell you what we are doing. We just use loom cleaners with brushes. They clean off when the warp is off, and others stop the loom and clean it off. I feel like it is better than blowing off, because we save the black-oil seconds."

"How many looms do your cleaners take care of?" asked Stanley Converse, general superintendent, Clifton (S. C.) Mfg. Co., "and how often do you go over them?" Mr. Shippey replied that they have 600 to 700 looms in a room, and get around them about every eight or ten days.

In reply to a question from W. H. Hardeman, overseer of weaving, Newberry Cotton Mills, Newberry, S. C., Mr. Shippey emphasized that they do not use the blowing system at all in their weave room.

Finds Blowing Method Cheaper.

H. G. Smith, overseer of weaving, Beaumont Mfg. Co., Spartanburg, S. C., was asked to give his experience, and replied that he uses the brush method in one room and the blowing system in another. In connection with the latter, he continued that his biggest problem was in regard to the water which condenses in the air. "I find that our looms are in as bad shape when we get through blowing them off as when we started. The fly and lint sticks to the frame of the loom, and we must brush them off anyhow from time to time. In the other room, however, where we use the brush, we can keep our looms in pretty good shape. Our seconds on different kinds of goods will run about two per cent more where we blow off, on account of oil, than where we clean with the brush—and that two per cent is oil.

W. A. Black, Chairman of the Weaving Division.

"If I were building a new mill I would not advise putting in the blowing-off system. It will cost a little more to clean with the brush. We use one man on 300 looms with the blowing system, and three men on 320 looms with the brush, but I believe it is worth it when you take into consideration the seconds, etc."

Harold R. Turner, superintendent, Watts Mill, Laurens, S. C., asked if anyone had had experience with the vacuum system of cleaning. Mr. Cantrell, of the Alexander Mfg. Co., at Forest City, N. C., said they had tried the vacuum, but according to their experience it was not strong enough to do this work. Mr. Franks here offered the prophesy that, "maybe

not in our life-time, but one of these days they are going to do this cleaning by vacuum, just like we strip cards with vacuum now-a-days."

Mr. Hardeman asked, since most of the men present seemed to be using the blowing-off method, for information on how to carry this work out properly.

"If you want to know the best method," said W. W. Cobb, superintendent, Norris Cotton Mills, Cateechee, S. C., "it's to use the brush, if you don't care anything about the cost. I don't think there is any question but that the brush is the better way to clean off if you take into consideration the seconds." He pointed out, however, that this question of cost is one which is considered by the financial executive. In his opinion, "you are just fooling yourself when you blow off looms. About every six months or a year you have to take kerosene and a rag and clean them off anyhow."

What Do YOU Think?

What is the best way to clean looms?

When should tallow be added in cooking potato starch size?

Do you have more weaving room shedding this year than last?

What makes filling slough off more on Monday morning?

Does the warp or the filling make the twill?

What makes steel heddle frames break in the middle?

You will find discussion on these questions in the accompanying report. The Discussion Department of COTTON will welcome further discussion on any of them from you, whether or not you attended the meeting.

"On 1598 looms, we use three men to do the cleaning, with the blowing-off system," reported Mr. Hardeman, adding that while H. G. Smith reported his seconds increased by two per cent, he does not have but one-half of one per cent more on account of black oil. He wanted to know how it is possible to keep the condensation out of the air. He said he used to clean with a brush but found it comparatively too expensive.

Answering Mr. Hardeman's question, Stanley Converse said he uses air in two mills, and that when his Barber-Colman equipment was put in, it was suggested that they run the air through a system composed of water tanks formerly used in his home. The air passes in at the bottom of about a 15-gallon tank, and comes out at the top. He said in this way he was able to keep the air fairly dry.

"I am not a weaver," said W. H. Burnham, of the Parks-Cramer Company, "but I have installed a great many air cleaning systems, and if you are troubled with condensation in your air it is due to a lack of proper equipment to cool the air before it goes into the room." He pointed out that air compressed at 60 pounds pressure will have a temperature of around 150 degrees, and that when this goes directly from the compressor to the room, a condensate forms on the inside of the pipe, because the room temperature is lower than that figure, and that an ample air-cooler installed between the condenser and the receiver would cool the air to nearly the temperature of the room and tend to eliminate this trouble. He also suggested mechanical lubrication rather than open-hole methods as a means of reducing the oil spots. He further suggested the installation of a pocket in the air line, the full size of the pipe and about 18 inches long, located in the pipe at the hose connection, which would be equipped with a drain and allow the condensate to be drained off instead of going on with the air.

Mr. Turner of Laurens confirmed Mr. Burnham's suggestion by relating his experience. He said the mill had been equipped with the turbo head type of humidification, and that later high-duty heads had been installed. There was an air-cooler in the air line. In trying out the vacuum system of cleaning, he did not have enough pressure, and to secure this he removed the air-cooler, and immediately got water in the air used for cleaning.

At this point Mr. Hardeman asked what pressure should be carried in compressing the air. Mr. Burnham replied that 60 pounds is ample, *provided* the right size and kind of nozzle is used. He explained that most mills use a nozzle that is too large and are required to carry a higher pressure than would be necessary with proper equipment, in order to secure the same results. He pointed out that many mills use a ¼-inch nozzle, explaining that a 3/32-inch tapered nozzle is much better, and causes little loss in velocity, and that with such a nozzle, 60 pounds should be ample to get the desired results. F. D. Lockman, Lockhart Mills, Lockhart, S. C., reported that they use 80 pounds pressure, "but we do not get that much at the nozzle." M. B. Lancaster, superintendent, Pacolet Mfg. Co., Pacolet, S. C., said he uses 65 pounds pressure, and Mr. Hardeman, and Mr. Holcombe, of Rhodhiss Mills, Rhodhiss, N. C., reported 70 pounds.

Do You Figure the Cost of Washing?

Chairman Franks at this point referred to the discussion about the difference in cost between cleaning with air and cleaning with brushes. He asked those cleaning with air, who suffer from the consequent oil spots, "Do you wash these oil spots out in the cloth room?" "We try to," was the reply. "But you pay people to do it, don't you?" continued Mr. Franks. "All right, did you ever take the time you pay for in the cloth room and add it to the cost of air cleaning? You think you are getting it cheaper when you blow off, but maybe you're not if you wash it out. It is like taking money out of one pocket and putting it in another. Of course, the labor in the cloth room is charged to that department, and not to the weaving, but it all comes out of the same treasury after all. Some of you might figure that out some time as an experiment. Figure how much it costs you to wash the spots out when you blow off."

How Should Potato Starch Size Be Cooked?

"In making potato starch size, when should the tallow be added: before the boiling point is reached, or afterward?" was the next question asked by Mr. Franks, who explained that this would probably be of interest to the fancy weavers, since potato starch is used more commonly on this class of work.

"I think the starch ought to be put in the kettle

and stirred up, and then the tallow added," said Henry Lawrence, of the Drayton Mills, Spartanburg, S. C., explaining that it seemed to run better when made in this way. He explained that the starch is put in and allowed to run for about thirty minutes, and then the steam is turned on, the water being milkwarm, which will melt the tallow.

Mr. Franks expressed his opinion: "I believe that, whatever you are going to use—compound, gum or what—you should put a little water in the kettle to start with. Then put in the gum or compound or tallow and start stirring, with just enough steam to warm it up. I run it until it is thoroughly mixed, and then draw in the amount of water that I ought to start with and keep the stirrers running all the time. Then all the tallow, etc., will be mixed into the water. Of course that will bring it down. Then add the starch and let it mix, turning the steam in just a little, and let it simmer for about 30 minutes. Then turn the steam on and let it cook until it is done. Then measure it to see if you have the right amount of size. If not, draw in a little more water and boil it for 15 minutes, and then you have a kettle of size."

Walter Shannon, Republic Cotton Mills, Great Falls, S. C., said he doesn't do it just that way, but pretty close to it. "We run our water in, in the amount we are going to start with, and then put in our tallow and compound and stir, then we put in the starch and stir until it is thoroughly mixed. Then we turn the steam in and let it come up to a boil, and from the time it starts boiling, we cook it for an hour and a half and get a pretty good size."

Mr. Franks asked if, in putting the starch and compound and water together, he had ever noticed a hunk of tallow up on top, and suggested that Mr. Shannon look into this.

How Long Should it Cook?

Mr. Wofford asked how long size should be cooked, pointing out that Mr. Shannon had said an hour and a half.

"I cook mine until it is done," said Mr. Franks. "Some times longer than others. No size is done until it comes to a clear blue. I will explain why I don't start in as much water as I am going to have size. There is no man who has steam that is the same all of the time, some will have more condensation in it than other steam will, and if you have wet steam and put in enough water to begin with, you will have 15 to 20 gallons more size than you want. Sometimes you have wet steam, and sometimes it is dry, and it takes longer to cook with wet steam than with dry steam."

Discussing this subject, R. E. Buck, Jr., of Arnold, Hoffman & Co., Charlotte, N. C., pointed out that "the idea is to get the starch thoroughly mixed in the solution. I don't think it makes much difference when you put the compound in, so long as the compound doesn't form a coating, or cause the starch to lump in the compound. The idea is to get the starch thoroughly mixed in the solution, and then add the compound before or after it comes to a boil, just so it doesn't hinder the starch."

J. C. Alexander, Corn Products Refining Co., Greenville, S. C., referred at this point to an article by G. E. Govier, appearing recently in *Textile World*, in which the author advocated mixing the starch in lukewarm water, bringing to a boil and cooking, and then adding the tallow, compound, etc. He declared Mr. Govier had stated that this resulted in a saving in starch, and that a further point in the theory was that the preservatives were volatile, and much of their effect was lost if added prior to the cooking.

Mr. Franks said he could see where that was practically the same thing he had mentioned—to let it simmer for about thirty minutes until it is thoroughly mixed—*however*, he could not see the reason in putting the compound in after the boiling. "It's just like a man salting his 'vittles' after they are cooked. The result will not be so good."

"I have been making size ever since I was a boy," said W. A. Black, superintendent, Beaumont Mfg. Co., Spartanburg, S. C., "and I have burned my arms many a time on a size kettle, and I have tried various experiments with potato starch and corn starch, and in my opinion there is no difference as to when you put in your compounds. The all-important thing, in my mind, is *cold water* to mix the starch in. If you will use cold water—and the colder the water the better—and put the starch in, then you can add the ingredients any time between that and the time you start cooking, as you like, but we all know that you cannot mix starch unless you have cold water. Then add your tallow and compound. Boil according to what kind of size you are making, whether potato or corn, but I do not believe it makes any difference as to when you put the compound in; the all-important thing is cold water to mix the starch in."

E. A. FRANKS, superintendent of the Dunean Mills, Greenville, S. C., who conducted the discussion at the Spartanburg meeting. Mr. Franks is chairman of the Association's fancy weaving division.

"Well, that was just one man's idea," said Mr. Franks. "I do know of a mill that was doing it the other way, and we changed over to the way I explained, and where they had been getting 1,000 pounds of floor sweeps a week, we cut that down to less than 300 pounds, and since the cotton we were using cost $1.00 a pound at the time you can see that there was quite a bit of saving."

Mr. Shannon at this point explained why he sets 1½ hours as his cooking time. He said he had found it inadvisable to leave it entirely up to the slasher man's judgment, as he might cook it for two hours or four hours, and that by having this standard to guide him he came nearer cooking it for the correct length of time.

At this point W. E. Wall, overseer of weaving,

Using Warp Tyers with Loom Fixers

ABOUT a year and a half ago, we published some extensive discussion concerning the use of special hands for tying-in warps, brought up at Spartanburg by Mr. Franks. A question on this subject was published in the August 1927 issue, page 1019, and answers to it, giving various mills' practices in this connection, appeared on page 264 of the January 1928 issue. Readers who wish to read this discussion, and do not have copies of these issues in their files, will be furnished clippings of these letters upon application to the Editor.

Lancaster Cotton Mills, Lancaster, S. C., brought up the question—"why do we find more shedding off in one alley than another?" He explained that he was referring to an entire alley; not a few looms scattered here and there; that the warps were not set in all at one time, but as they ran out.

More Shedding in One Alley Than Another.

Mr. McAbee explained it by pointing out that on a foggy night, an automobile driver will find that the fog is "spotty", and that the humidity conditions, generally, would be the same; that is, spotty throughout the room, a difference caused by these "spots" resulting in the condition described by Mr. Wall. Mr. Wofford, of the Saxon Mills, Spartanburg, S. C., declared that some of such a condition might be caused by different temperatures obtaining in the size vats at the time the warps were sized; and that some could be attributed to changing blankets on the slasher rolls. He pointed out that a new blanket will give a different kind of size from that turned out by a blanket that had run for several days. However, this would seem to make the spottiness show up on different individual looms rather than whole alleys. The setting of the harness, he added, might also have something to do with it.

Harold Turner suggested that switching the sweepers around from one section of alleys to another might help out.

"I have noticed that condition," said F. D. Lockman, "but I decided that I was just fooling myself. I figured that it was in the draughts in the room, causing in some alleys the lint to collect where it could be seen better than in others. And, I have known of sweepers to skip alleys, too. I don't think that there would be any more shedding in one alley than in another; I think it just shows up worse in some." L. E. Wofford suggested that if anyone wanted to check up on this, he could use some ordinary brown paper out of the cloth room and put it under the looms and check up in this way. One thing he wanted to know was whether there would be more shedding in the wet or the dry spots caused by a spotty humidity condition, but there was no discussion on this.

Mr. Hardeman agreed that the humidity might have something to do with it, as well as the sweepers themselves.

J. H. Campbell, Broad River Mills, Blacksburg, S. C., said that, "I have noticed that when I come down in the morning, and get my eyes open and start down the big alley, that it will seem that there is more shedding on one side of the alley than the other, but when I start back the other way it seems that the other side has more on it, so I concluded that it was entirely a case of the way the light was shining on it when I was looking at it." This seemed to be the general consensus of opinion as to the probable cause of an appearance of this kind. This question led logically into the next question which Mr. Franks had prepared, as follows:

More Shedding This Year Than Last.

"Do you notice any more shedding of starch in the weave room this year than you had last season?"

"I think we are getting *some* more," said W. W. Cobb, of Cateechee, S. C., "for the reason that there is a tendency on the part of the ginners to want that $3.00 or $3.50 a bale, and they speed their gins up from 350 to 700 r.p.m., or something like that, and we are getting more gin-cut cotton and more short cotton."

Stanley Converse said he is getting more shedding, but attributes it rather to the unevenness in staple of the cotton, because, he said, "I notice it more in the card room and spinning room than in the weave room." "You can take a piece of yarn and twinge it like a banjo string, and tell by whether the fly comes off whether you are straightening out the fibers properly," said Mr. Franks.

Reverting back to the question about different sweepings in different alleys, Mr. McAbee said he had once worked for a man who made him move the hygrometer from one place to another in the room until he found the condition which would correspond with his report, and suggested that this might be a way of arriving at the answer to the question.

"I'd have just copied that report," commented Mr. Franks.

Percentages of Weave Room Sweeps.

"I would like to know just how many men check up on their sweeps, and what percentage of sweeps they get?" suggested Mr. Hardeman. The answers were given to include the sweeps not counting the white cotton which was picked out, reclaimed and not classified as waste. Stanley Converse reported that in a print cloth weave room of 1,020 looms, his weave room sweeps ran about one-half of one per cent. Marshall Stone reported one half of one per cent for the first six months of last year, and .59 per cent for the last six months, on 18s yarn, using local cotton. Mr. Buck of Charlotte stated that investigations he had made showed weave room sweeps to range between one half of one per cent and one and one-half per cent—that the latter figure would be considered somewhat high. As indicated these figures did not include the filling waste, etc., thrown on the floor in threading batteries, etc.

"Do mills on the multiple system find it advan-

tageous to use trucks for battery hands?" was the next question submitted by Mr. Franks. A further inquiry brought out the fact that about ten mills of those represented are using the multiple system in the weave room. The broaching of the multiple system subject naturally brought on some discussion of other phases of the subject, also.

Trucks for Battery Hands.

The first man to report on the truck question was J. H. Burgess, who said that "it is an advantage to use the trucks. You know, filling batteries is quite a hard job anyhow, and we stack the filling in adjustable trucks, and it is not so hard on the battery hands."

L. E. Wofford, of Inman, S. C., said he had the trucks, but he noticed that the battery fillers would take the filling out of the trucks and put it in their aprons, anyway.

E. H. Thomas, of Abbeville Mills, Abbeville, S. C., was the next man to report. He said, "We have the multiple system, and use the trucks, and the battery fillers like them, but they are unhandy for every alternate battery, but they get along with them all right. To keep the filling waste off of the floor—the waste made when the battery filler winds the yarn around the knob of the battery—we have them put it in the quill cans. Most of our looms are feeler looms. We have eliminated four filling haulers by having the elevator men place the filling in the filling trucks where it is convenient for the battery fillers to get it." Mr. Franks asked him if he had to increase the number of elevator men, and Mr. Thomas replied negatively.

"We went onto the multiple system, and used the trucks," reported W. E. Wall, of the Lancaster Cotton Mills, "but we found that they broke a lot of parts of the loom in the alley, and the battery hands seemed to like the apron method better anyway, so we discarded the trucks, and use only the aprons." He explained that a battery filler can carry enough filling for eight looms in an apron, anyhow, and that is the cycle in which they work, having a box every eight looms. He said the trucks were in the way of the weavers.

In response to various questions, Mr. Thomas gave various minor details in connection with his multiple system. He said the battery hands fill batteries on 40 looms (which he said was better than the average in his plant) on looms from 28-inch to 40-inch, making 160 picks per minute. He takes the cloth off at the cut marks, and has the weaver do this, instead of using a cloth man, as he found this to be a better arrangement.

W. F. Howard, Pacific Mills, Lyman, S. C., said they have been on the multiple system for about five years, and that their battery fillers use trucks and aprons also. They use filling boxes altogether and do not have any filling rollers. The battery fillers fill their aprons from the boxes.

"Why do you have more trouble with filling sloughing off on Monday morning than at any other time during the week?" was the next question asked by the chairman.

"That's because the room gets dry over the week-end, and the yarn gets dry on the quill, and the filling sloughs off," explained W. L. Shippey, Spartan Mills, Spartanburg, S. C. The practice of emptying the batteries on Saturday afternoon, and conditioning the filling before starting up on Monday morning, as an aid in this difficulty, was suggested. Also, said Mr. Shippey, if the humidity is kept up over the week-end this trouble would be eliminated* There were many present who indicated trouble along this line, several explaining that on Monday morning, to take hold of a quill and sling it would cause the filling to slough off just like cracking a whip.

Running Humidifiers Over the Week-End.

READERS desiring to study further the subject of running the humidifiers over the week-end, as mentioned by Mr. Shippey, will find some enlightening discussion on the subject in recent issues of COTTON. *On page 825 of the June 1928 issue appeared a question concerning this practice, and in the August issue, page 1047; October issue, page 1279; November issue, page 54; and January 1929 issue, page 288; were published letters from mill men giving their opinions on the matter. Clipped copies of these discussions will be furnished to any readers who do not have these issues and who wish to read them.—The Editor.*

Why Does Filling Slough Off More on Monday Morning?

"I have noticed that during the Winter," said C. H. Lockman, Henrietta Mill, Caroleen, N. C. "On Monday mornings we would have an unusual amount of filling knocking off. I cannot account for it unless it is because the yarn dries out, and another thing will cause it after it gets in the loom, and that is that the shuttles will bounce more on Monday morning because the mill has dried out over the week-end. This is especially noticeable if you have the least bit too much power on the loom."

L. H. Holcombe, of Rhodhiss Mills, said he had found this to be caused some by the practice of putting tallow on the shuttles on Saturday afternoon. He said he had seen some filling that couldn't be "slung off" in the manner described, but which would slough off in the loom as a result of this practice. The tallow finally gets into the swell binders and makes the shuttles bounce, he explained, and added that when he had put in new shuttles and swell binders he had eliminated a great deal of this trouble.

The chairman requested James A. Chapman, Jr., to discuss it, and he replied that at his print cloth mill in Inman, he does not have this trouble. He starts the humidifiers up about three o'clock in the morning, and then, about an hour before starting time on Monday, gets them going at the proper rate. At his Riverdale mill, on coarser numbers, however, he did have

this trouble somewhat, but stated that he is overcoming it by changing the design of the filling quill. Mr. Franks pointed out that an incorrect taper on the bobbin would cause this, but that would apply any day in the week, and Mr. Holcombe brought out that an improper setting of the whip roll would also have something to do with it. Mr. Chapman said he carries about 85 per cent relative humidity, and Mr. Holcombe says he has eight grains of moisture to the cubic foot of air, and checks this every hour.

Shiners in Rayon.

This subject gave Mr. Franks an opportunity to introduce a question for the fancy weavers, and he asked if any had trouble with sloughed-off filling or shiners in weaving rayon.

"I suggest you simply ask how many present are running rayon, and in that way you can tell how many are having that trouble," said J. K. Poole, assistant superintendent, Stonecutter Mills, Spindale, N. C. He said in answer to the question that he had eliminated sloughed-off filling to a certain extent by changing the design of the filling bobbin.

"We do not have any trouble with filling roping off," reported Mr. Shannon of Great Falls, "but it does pull off, and not having the right amount of oil on the rayon will cause that. We have some kinky filling—some call it shiners—and we have overcome some of that by oil, and some of it by using fur in the shuttle."

"The size of the bobbin has a great deal to do with it," declared Mr. Franks. "I have seen people wind rayon on a bobbin that wasn't fit for it. A cotton bobbin will not work on rayon. Rayon is soft and will balloon pretty badly. The diameter of the bobbin has a whole lot to do with it. If you use a small bobbin, then when you run it down about half-way, if you have enough friction on it to keep the balloon down, it will pull hard and you will have streaks in the cloth. If you run a bobbin that is big enough in diameter, so it has friction enough on account of the circumference to keep the balloon down, it will not pull down.

"Even with the big bobbin, if you do not have the right wind, if the taper is too short, it will pull off. You must run a larger bobbin on rayon because the amount that lies around the bobbin makes it loose enough so it will not pull hard around the end. On a small bobbin, if you put friction on to keep the balloon down you will have shiners."

E. M. Terryberry, southern sales agent of Howard Brothers Mfg. Co., endorsed Mr. Franks' remarks with reference to the advisability of a larger diameter bobbin, relating an experience he once had in a Philadelphia woolen mill under similar circumstances to illustrate the point.

THE CARDING division of the Southern Textile Association will meet next, on March 15th, at Augusta, Ga., it is announced. J. O. Corn, superintendent of the Pacific Mills, Columbia, S. C., is chairman, and should be written concerning suggestions for discussion subjects. The Spinning Division meeting will follow, at a time and place to be announced later.

Does the Warp or the Filling Make the Twill?

At this time a somewhat interesting, informative, and in some ways amusing discussion developed from the next question by Mr. Franks: "Which will give the best face on a twill, a coarse warp with a fine filling, or a fine warp with a coarse filling?"

Mr. Holcombe replied. He said that "a fine warp and a coarse filling would give a better twill because the filling stands through the warp better, and a soft filling is better because a hard filling will give less twill. The way your looms are set also has a great deal to do with it."

"Would the construction of the cloth have anything to do with it?" asked Mr. Franks. "Suppose you had an 80 x 48 piece of goods, and ran a 20s warp and a 12s filling."

"That would make a good heavy twill," replied Mr. Holcombe.

"All right, now turn it around and suppose you put the 12s in the warp and the 20s in the filling, with the same construction?" suggested Mr. Franks.

"I don't think that would give you a twill that would show up as well," said Mr. Holcombe.

"Well, which is the twill, anyhow, the warp or the filling?" asked Mr. Franks.

"Why, the filling makes the twill," said Mr. Holcombe.

Marshall Stone said the warp makes the twill.

"Absolutely," said Mr. Franks. "It cannot be a twill unless it is more than two harnesses, and the face is made with two up and one down. The filling never twills, and therefore, maybe the construction would have something to do with making the cloth look different."

"What difference would it make to break it from the front or from the back?" asked W. E. Wall.

"I think that the finer filling and the coarser warp would make the better twill," said F. D. Lockman. "There is more contraction in the warp, and there is a better face or a more prominent face."

"Yes," said Mr. Franks, "if you are running a coarser warp and a fine filling you would get a better piece of goods."

"It depends on what the goods are being made for," declared W. A. Black. "On a four-yard twill for pocketings, they usually want a filling face. There is no plain side of a twill. One side is a filling twill and the other side is a warp twill. Now, when you get into the twills heavier than four-yard, they usually want a warp twill."

At this point C. L. Williams, service expert of the Draper Corporation, cleared up the waters of discussion a little bit by explaining fully the difference, as well as bringing out some other important and interesting points. He said that, "a twill is considered to be a weave where each harness works in consecutive order. You can take on a twill, it is 1, 2, 3, or it is 3, 2, 1. Now on sateens it is the same thing except that the harness must not work in consecutive order;

(*Continued on page* 555.)

Using *the* pH Control *in* Dyeing

How to Take this "Mysterious" Thing Apart and Make It Work in the Dyehouse is Clearly Explained in this Article

By Harold Schroeder

IN ANOTHER part of this issue a dyer of forty years' experience asks for enlightenment on the subject of actually using, in a practical way, pH control in his regular dyehouse routine. In other words, he wishes to take the thing out of the show-window, wind it up and set it to work.

The reasons that he gives for wanting to associate himself with this latest outburst of scientific effort are not somehow entirely convincing. No dyer, up to this time of writing, has ever willingly left his dyehouse in charge of the second hand without holding a sincere belief that the quality of the resulting dyeings would be somewhat noticeably below the standard. And, offhand, it does not seem probable that a dyer, any dyer, would greet with cheers, the arrival in commerce of little boxes, tubes and batteries extra, which after being wound up and properly adjusted, would automatically, irrevocably and inevitably produce as perfect work in the absence of the dyer as in his distinguished presence.

So well placed before the public in conjunction with such pretty pictures of apparatus has pH control been, that we are all, more or less convinced that here is something very deep and intricate; that if we were ever able to locate and push the right button on the machine, something would buzz and up would come the correct answer in grains, or maybe, in the more expense models, in grammes.

However, that is not so. There is no apparatus to be bought that can replace the skilled attention and experience of the practical dyer.

Just as a doctor uses a stethoscope, or we use a tire gauge, or a mechanic a micrometer, so there are machines available which, when properly handled, will give to an ambitious student dyer, the necessary information regarding hidden things which now he does not have.

Of course, pH itself, will not match a shade, nor will it indicate by patient tuning, the correct amount of dye to add in the case of an off shade lot. It simply supplies correct information as to acidity or alkalinity.

Let us now induce Hector, the pH hound, to plunge into a sea of diluted chemistry as applied to the dyeing of cotton and silk hosiery and see where unsuspected changes from the standard in the acidity or alkalinity of the various processes may be brought to light.

Very naturally, the quality of the water is all important. Varying hardness of water is often reflected later in variations of shade. The dyer who wants to get right down to brass tacks, will have the water supply analyzed until the last molecule is taken apart and named. Then he will know better what he is up against, what to expect and what to allow for. Of course few of us can afford such a useful luxury, so we have to do the best we can by watching the hardness.

As to showing hardness, pH does not of itself do this. If the hardness is what is called temporary, the pH test will show the presence of the accompanying carbonate but will not even whisper about lime or magnesia. It is necessary, therefore, to still use the old method of dropping soap solution into a sample of the water and shaking until something happens. Even though a dyer is fortunate enough to have an adequate water softening apparatus, he should still determine the pH of the dyehouse water supply, simply because so much water is used at all stages of the dyeing process.

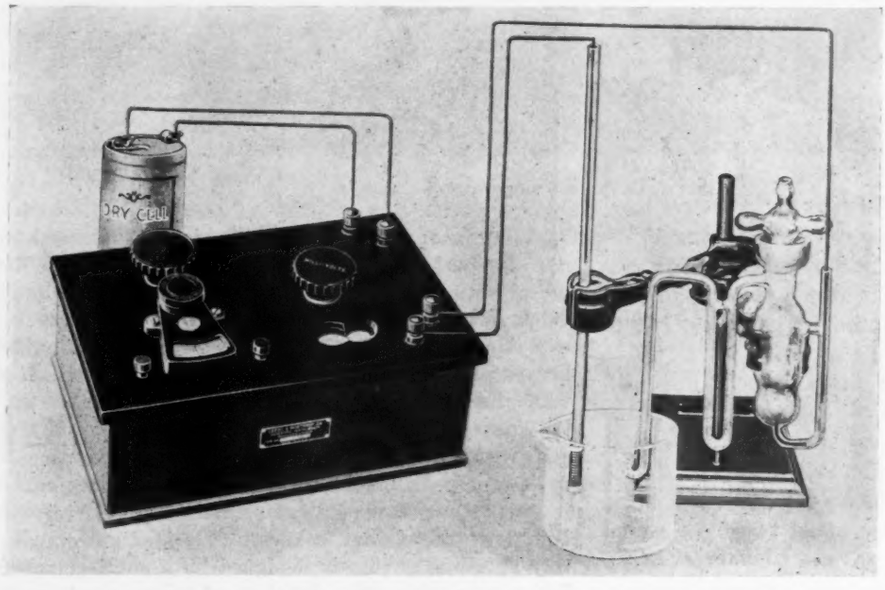


Fig. 1. Leeds and Northrup apparatus for the determination of pH.

We show in Fig. 1, a picture of an electrical apparatus capable of de-

termining pH in any quantities, but as may be readily seen, this is no machine to leave where Hank, the hired man, can get at it.

All methods of pH testing come down in the final analysis to one definite and unchanging fact, which is electrical pressure or voltage. Wherever you have pH, that is to say, acidity or alkalinity, you have an electrical pressure and moreover an electrical pressure exactly corresponding to the particular pH at that point. In other words, if you find a sample of water has a certain voltage or electrical pressure you can then look up a table of figures and find the corresponding pH; or, to put it another way, if you make up a solution of a definite pH and then hitch up one of these electrical machines, it will indicate always the corresponding voltage.

In the picture may be seen the two electrodes which are put, like a couple of fish, into the sample under test. There is now developed across these electrodes the proper electrical pressure corresponding to the pH of the sample. The needle of the galvanometer, which is just a delicate apparatus for showing if the electrical current is flowing, will move. Now you proceed by turning certain knobs on the machine to send another electrical current through the wires, but in the opposite direction to that due to the pH. That is to say, you have something like a railroad line with two locomotives pushing against each other. When the two currents are equal, the needle of the galvanometer stays in the middle of its dial. Then by reading the position of the various knobs on the boxes you know just how strong a current you had to send through the wires, and that way the pH may be determined.

These electrical machines are entirely accurate. They are invaluable for use in colored solutions, such as dyes. They are expensive, not especially simple to handle, and require a close regulation of the temperature of the sample. No doubt later on they will be made more sturdy and fool proof.

The colorimetric methods for the determination of pH do not require that the dyer be also an electrician. These methods using dyes or chemicals giving colored solutions also depend for their operation upon the electrical pressure.

Into a measured sample of the liquid under test is put a definite amount of the indicator. This indicator promptly changes color and the particular shade it develops exactly corresponds to the particular degree of pH in that solution. The color so obtained is matched against a row of standards prepared with the same indicator and solutions of known pH value.

In Fig. 2 we show a photograph of a LaMotte roulette comparator. This is not, as might be thought, a merry-go-round, nor is the electric wire you see hitched onto it for the purpose of spinning the tubes around. This wire supplies a light, so that the tube containing the test liquid may be always compared under standard light with the other standard tubes. The wheel is turned, bringing to the side of the test liquid tubes of different pH until one is found which makes a match with the test liquid. At this point the dyer heaves a happy sigh and reads off on the standard what the pH is.

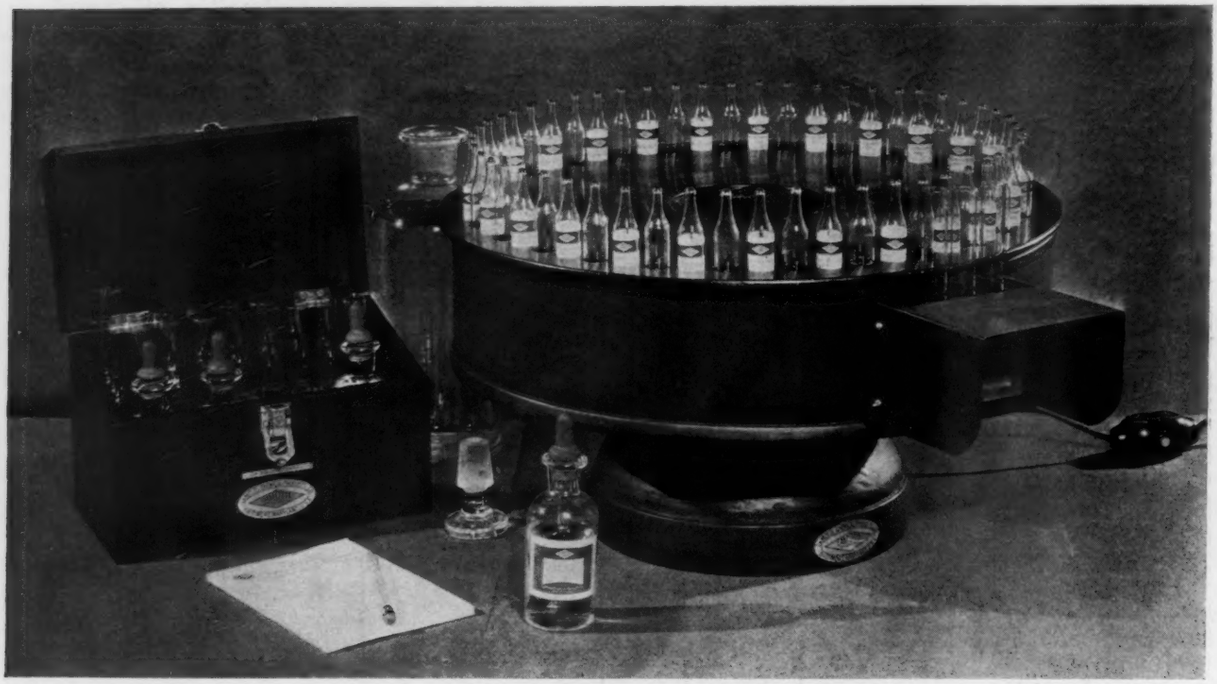


Fig. 2. LaMotte Comparator.

The dyer has to make up his own standards himself, with this type of apparatus, and that, to some of us, might be a little difficult, although it does enable us to use our own particular choice of indicator. In Fig. 3 we show what is known as a Hellige comparator. This was obviously designed by a gentleman who had seen a slide rule. In place of the rows of graduations, are little slabs of colored glass, each slab match-

es exactly the shade that would be produced by a definite indicator by a known pH. The test liquid prepared as before, with the same indicator as was used in making the glass slabs, is stuck in the part that can be moved along, and by holding the whole thing up to the light and moving the slide, the dyer can find a glass slab that matches the test liquid. The degree of pH is found engraved on each glass plate.

We give in the following table a list of indicators which covers the whole range from 0 to 14 alkaline:

Indicator	pH Range
Malachite Green	0.0—2.0
Thymol Blue	1.2—2.8
Methyl Violet	0.1—2.8
Brom Phenol Blue	3.0—4.6
Brom Cresol Green	4.0—5.6
Chlor Phenol Red	5.2—6.8
Brom Thymol Blue	6.0—7.6
Phenol Red	6.8—8.4
Cresol Red	7.2—8.8
Phenol Phthalein	8.3—10.0
Alizarin Yellow R	10—11.6
Malachite Green	11.5—14

It will be seen that there is no one indicator which satisfactorily covers the whole range from 0 to 14.

Each indicator has its own range of pH over which it works the best and outside of which it cannot be depended on. A dyer will be interested to see among the list such old friends as Methyl Violet, Malachite Green, Alizarine Blue, Phenol Phthalein. Each indicator covers its own range, for example, Brom Thymol Blue covers the range of pH 6 to 7.6 (this is the neutral zone.) The limit of perceptible color change is .2 of a pH degree, so using Brown Thymol blue the dyer will use nine comparison standards, for example, 6, 6.2, 6.4, 6.6, 6.8, 7.0, 7.2, 7.4, 7.6, outside of that range he will have to use a different indicator. For each section of the pH scale there is a different indicator required. It is not practical to use Brom Thymol blue, for example with pH above 7.6 or lower than 6. For use with higher or lower pH values there are different indicators, each with its own range of about two pH points.

It has been found by experiment, that the limit of perceptible change is one fifth of a pH unit. That is to say, you can see a difference between the color produced by a pH of 7 and one of 7.2, but not the difference between 7 and 7.1. However, I would venture to say that a dyer of experience might be able to see closer differences than the makers of these machines expected. There would, however, be no extra charge in such a case.

This long list of indicators will probably cause a dyer to be in doubt as to which he shall choose. When starting out cold with pH work of course it is not known what various pH ranges in the dyehouse will be. There has been developed for such a situation what is called a universal indicator. It will cover the whole range and give a different color of the spectrum for each band in the pH zone.

When testing a solution for the first time, such a universal indicator could be used and it would, with a certain amount of practice on the part of the dyer, point out what the approximate pH was and then by looking at the foregoing table the dyer would be able to pick out an indicator which would give closer results.

Now we have our pH apparatus and we know how to use it, so the next thing is to find a place to use it.

How pH is Used.

Silk dyers, and this includes dyers of cotton and silk hosiery, are always concerned about their boil-off. This, to them, is the most important operation of the entire dyeing. It happens also to be one to which pH control is entirely applicable, with a little ingenuity on the part of the dyer.

I remember hearing a very well known silk hosiery dyer being asked at a meeting whether he preferred soda soaps or potash soaps in his boil-off. His answer was very short. He said, with accompanying gestures, "I use no soda. I use no potash. I use nothing but soap." What the gentleman meant was his long experience had proven to him that nothing could be added to soap which would improve upon pure soap as a boiling-off agent, but his answer did not bring out the fact that it was the alkali in that soap which really did the boiling-off.

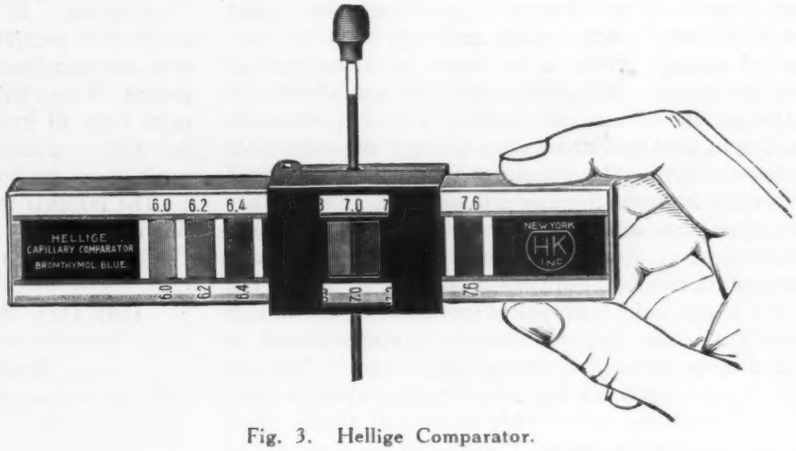


Fig. 3. Hellige Comparator.

Soap dissolved in water produces a solution of soap and also a small amount of free alkali. It is this liberated alkali which works on the silk gum, loosens it and allows it to be emulsified by the rest of the soap. A soap solution then will always have a pH value. That is to say, a soap suitable for use in boiling-off. The pH of the soap solution is greater when the soap is hot and less when cold, so that the temperature of the test is important.

It will be seen that a soap solution of high pH, being alkaline, might be expected to boil off the silk more rapidly than a soap of low pH, but this high pH might injure the silk, so each dyer will have to determine by his own tests what is the best pH to use in his own dyehouse.

(*Continued on page* 519.)

Some Accurate *and* Time-Saving *Mill Calculations*

By Edward R. Schwarz, S. B., A. T. I.

In this article it is explained that a calculation is no stronger than its weakest part. Mr. Schwarz uses as a basis a common mill calculation to illustrate a simplified method of arriving at a result—at a saving in time and with insured accuracy.

This discussion is confined to common methods of arithmetic in solving mill calculations, and the stand taken by the author is that with the commonly accepted methods of figuring calculations, much time and effort is wasted in search of a result which cannot be figured beyond reasonable limits of definiteness. He explains how a simpler method — discussed in this article — will produce the same practical results.

THERE are three methods by which the mill-man may arrive at the solution of the numerous mathematical formulas used in the industry. The first and most obvious is also the most laborious, and often much less accurate than is supposed. This is the working out of the formula by the substitution of the numerical values and the use of arithmetic. The use of the slide rule greatly simplifies the calculation and shortens the time required to obtain the result, but this device, unfortunately, is not extensively used in the industry. The second, and very frequently employed method, is that of reference to tables, such as are frequently supplied in text-books, manufacturer's catalogs, etc. These are productive of a considerable saving in time and labor, provided they are sufficiently comprehensive and worked out with sufficiently small intervals between the successive values given. They occupy a large amount of space as compared with other methods of presenting the same data, and require many computations and much time in their construction. The third means is by a graphical treatment of the data in charts of some sort. These may be single curves or families of curves, or nomographic charts. The latter is very often the best way of presenting the data for frequent use where wide range and simplicity of utilization are necessary. Very often as much information is easily obtainable from a single nomograph as would be found in pages of tables or ordinary charts. No computation of any sort is required for the solution of problems by this agency. To cover all three forms of handling mill figuring would take too much space for one article, so that the following will be confined to the methods of working out problems by the aid of pencil and paper and the common methods of arithmetic.

In any calculation, the figure which is least precise is the value which governs the entire computation. That a chain is no stronger than its weakest link is commonly accepted as the truth. It seems strange that its application to arithmetic should not have been obvious. Suppose, for a concrete example, that we wish to determine the counts of a yarn from a short length submitted for duplication. Let us assume that the length of the yarn has been measured with a rule graduated in tenths of an inch, and that it is found to measure 152 inches. This means that it is nearer 15.2 inches in length than 15.3 or 15.1 inches, but it does not indicate how much nearer, since the rule could not be read any closer than it was. Thus we do not know whether the actual value is 15.16 or 15.24. The tenths place is therefore uncertain, and the hundredths place is unknown. If the yarn is next bone-dried and weighed on sensitive balances while still in the drying oven, we may find the weight of ten lengths to be 1.05 grains. These balances are ordinarily not accurate to more than .01 grain plus or minus, so that the "5" of our 1.05 is uncertain, and the next place (the thousandths) is unknown.

The formula for determining the yarn counts from this data is

$$C = \frac{7000\ (L)}{(36)\ (W)\ (840)}$$

$$\text{or } C = \frac{7000}{(36)\ (840)} \left(\frac{L}{W}\right)$$

In this relation, the values 7000, 840, and 36 are absolutely accurate, since they are not measured quantities and thus subject to error of scales, observation, etc., but are determined by definition. Therefore, they may be combined as a decimal to as many places as we care to use—say five. This will give

$$C = 0.23148 \frac{L}{W}$$

The usual solution—and the incorrect one—would be shown in Fig. 1. That there is a lot of useless labor involved would seem to be apparent when it is realized that it is impractical to spin yarn to hundredths of a count. Even tenths of a count is beyond ordinary mill accuracy. Then why bother to carry so many figures? "The result would be incorrect other-

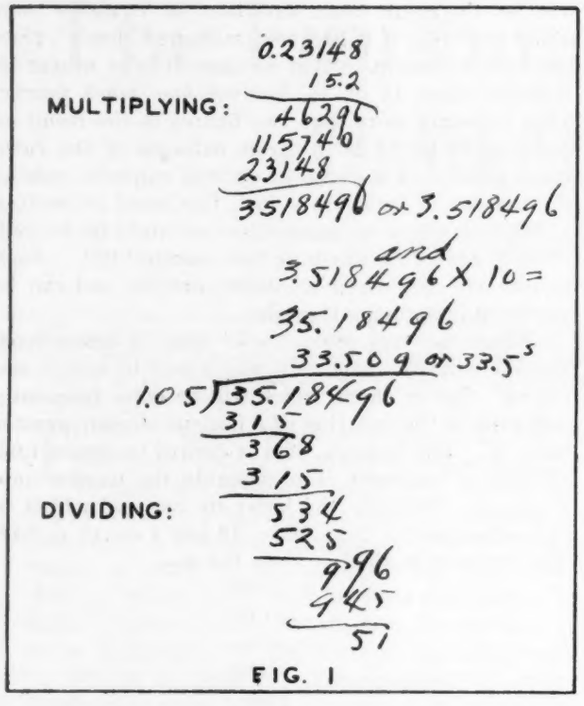


FIG. 1

wise," you say? Not at all! Look at the following computation to see how absurd it is to retain all five figures in the decimal 0.23148. Suppose an "X" is placed wherever the value of the figure is unknown, and that we treat the cross as if it were a figure, thus

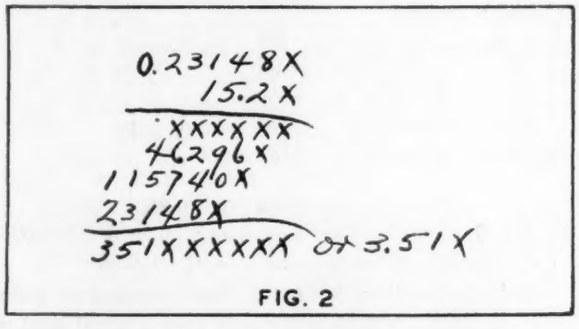


FIG. 2

Whenever a value is multiplied by "X" in the foregoing, the result must be *unknown* and can be represented by "X" also. Similarly when an unknown quantity is added to any figure in the sum, the result must also be unknown or "X". The answer is 35.1X. There is evidently no need to use more than three figures in each factor to start with—

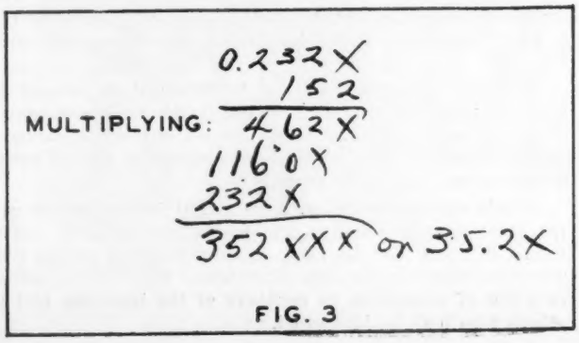


FIG. 3

Even here we have accumulated three unknown places, but this is much better and far less labor than the previous computation in which six extra and worthless places appeared. To avoid the valueless figures it would be necessary to use either logarithms, or —since there are not more than three figures to be obtained—a slide-rule. The most important consideration, however, is the fact that when the computation is performed as first shown, the additional figures, instead of indicating that much better accuracy, are really of no benefit whatever, since their real magnitude is absolutely unknown and indeterminable. To complete the calculations correctly

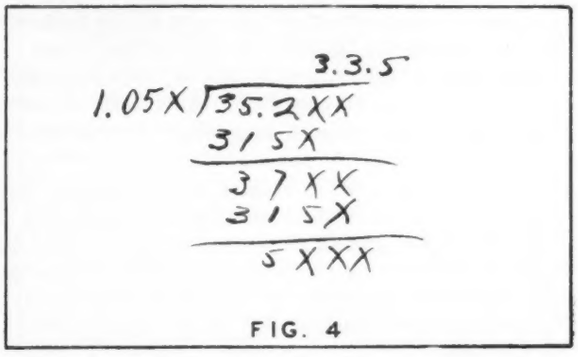


FIG. 4

Note—In the last operation above, it is impossible to subtract "5" from an unknown number "X", so according to the rule which follows, we drop the "5" and increase the next preceding place by "1", making the value "32" instead of "315". Subtracting gives "5XXX" and evidently 1.05 will go into this very nearly five times.

Notice that the result obtained by the correct method of figuring gives an answer which is in accordance with the one obtained by the long method, after the unknown places had been eliminated. It is a saving of time and labor to eliminate the necessity for accumulating worthless figures, before starting the calculation. It should be observed that in multiplication and division it is the number of known "figures" that counts, not the number of decimal places.

In addition and subtraction, however, it is the number of *decimal* places that is of consequence. This can be illustrated by the sum below—

	121.
To be	3.97
added:	0.0069
	43.1
	168.0769

By the usual method the answer would be given as 168.0769 and it would appear to be correct to four decimal places. This is not true as examination of the following handling of the problem will show—

121.XXXX
3.97XX
0.0069
43.1XXX
167.XXXX

The correct method is shown below and the result is seen to be the same as that for the first calculation

after the superfluous figures have been eliminated—

121.
4
43

168.

It is evidently foolish to waste time in measuring the quantity 0.0069. This has no effect upon the final result, and it might have taken several hours to determine—time that could have been better employed on something else. Unless all the other values to which it is to be added are known to at least 3 places of decimals it is absolutely worthless, and anyone who includes it in his computation shows at once his entire lack of appreciation of the value of his data, and of the worth of his time.

To simplify the statement of the methods employed in the foregoing, we have three general rules. These are simple and can be easily remembered and used.

1. Every calculation is governed by its least precise part. All other factors should be corrected to match this by dropping unessential figures, and if the figure dropped is equal to or greater than "5", increase the remaining place by "1". (Thus 315 would be 32X and 4798 would be 48XX if two figures were to be retained).

2. *Multiplication and division*—Retain in each factor only as many *figures* as are *known* in the least precise factor.

3. *Addition and subtraction*—Retain in each number only as many *decimal places* as are *known* in the *largest* number used.

The application of the rules means a great saving of time in many cases.

Figures are usually of two kinds—those determined by actual measurement, and those obtained by arbitrary assumption or definition. In the former case the value cannot be more accurate than the means of measurement allows. A rule must have a certain limit to the fineness of its graduations, and when it becomes necessary to estimate a point between successive divisions on the scale, that figure immediately becomes doubtful and the next place is therefore unknown. In some instances the number obtained is the result of dividing out a fraction to obtain a decimal. Here the number of useful figures which may be retained will depend upon the accuracy of the measurement of the fraction. For example, if a certain spinning frame has a front roll which is leather covered, and which measures 15/16-inch in diameter when calipered, it would be foolish to carry the decimal places in the equivalent decimal to more than two. The leather covering would *give* enough under the calipers so that the reading might vary several hundredths of an inch from this cause alone. If there is any suspicion of this, then the value to use would be simply 0.9 inch, rather than 0.94 inch. The value 0.938 is absurd because there is no possibility of knowing by the means of measurement employed whether the last figure is "8" or not. Another way of looking at it would be to realize that in the original fraction we have only two good figures in the numerator. We cannot tell whether the result would have been 30/32 rather than 29/32 or 63/64, if it had been measured closer. Thus the 15 is uncertain, in that we know it to be nearer 15 than to either 14 or 16, but not *how much* nearer. Then to retain more than two figures in the result of dividing 15 by 16 is in direct defiance of the rules given above. In the case of defined numbers such as the number of inches in a foot, this could be written 12.00000000000 to as many places as might be desired, since it cannot be anything but exactly "12". Such figures are considered absolutely precise, and can be neglected in applying the rules.

When the real precision of data is understood, there are many short cuts which can be safely employed. One of these, which will be quite frequently met with, is the squaring of a decimal slightly greater than "1". For instance, if it is desired to square 1.06, all that is necessary is to separate the number into 1 and .06. Multiply the latter by two and add it to "1"—thus getting $2 \times .06 = .12$ and $1 + .12 = 1.12$. The ordinary method is given below—

1.06
1.06

636
1060

11236 or 1.12

The same method, or rather a slight variation of it, works for numbers less than "1" by a slight amount. Suppose we wish to square 0.98, the result by the usual scheme would be

.98
.98

784
882

9604 or 0.96

By the short method we have $0.98 \times 0.98 = (1-.02)^2$
$2 \times .02 = .04$ and $1-.04 = 0.96$

A little forethought and a slight amount of judgment of values will save the mill-man a great deal of time, and a number of worthless results. Remember that a calculation is no stronger than its weakest part.

Institute Begins Ad Campaign.

The Cotton-Textile Institute, 320 Broadway, New York City, has begun an advertising campaign to strengthen the style position of cotton fabric. These advertisements will appear in daily and trade publications, and are expected to assist materially in the development of cotton goods markets.

The first advertisement will be followed by several to make cotton fabrics stylish. This is the first cooperative effort of any kind to advertise the cotton textile industry and its products. The appeal of the campaign will be based largely upon the style element.

Funds for the campaign were raised jointly by the cotton mills, cotton shippers and commission houses. The Institute plans also to issue a news bulletin, which will give high lights of the news of cottons. This will go mainly to a list of cutters-up, to members of the institute, and to others who may be interested.

The Finishing *of* Linen Cloth and Toweling

By T. Woodhouse and A. Brand

[This installment resumes the series of articles on this subject by Messrs. Woodhouse and Brand. The previous section appeared in the September, 1928, issue. Copies of previous installments will be furnished upon request.—The Editor.]

IN Fig. 16, and in those immediately following, various other types of calenders are illustrated. Fig. 16 itself is a typical example of a 7-bowled finishing and chasing calender as made by Messrs. John Downham & Company, Manchester. It is driven by means of cotton ropes working in the grooves of the driving pulley *A*; it will be seen that provision is made for three ropes. In this case, the necessary power is transmitted by the friction clutch *B*, shown to the left of the pulley *A*; arrangements can be made, however, to drive the machine by an individual steam-engine or by an electric motor, if either of those drives is desired.

The calender in Fig. 16 differs from those previously illustrated in other respects. For example, it has tubular tension bars or rails, shown clearly on the right-hand or feed-side at *C*, and is fitted with a folding, faking, or plaiting-down motion on the delivery side at *D*; moreover, it has two steam-heated bowls, *E* and *F*, so arranged that both sides of the fabric are made to come in contact with steam-heated surfaces. This will be evident from the diagram given in Fig. 17, where the fabric is shown passing round the tension rails *C* and into the machine at the nip of the two lower bowls *G* and *H*. If the upper side of the cloth is in contact with the face of the bowl *G*, then the underside of the cloth is in contact with the lower steam-heated bowl *F*. Taken in succession from the bottom bowl *H* upwards, the cloth is in contact with the bowls on its under-side and upper-side (or face and back) alternately. Hence, the interposition of two bowls between the two steam-heated bowls *E* and *F* puts the opposite side of the cloth in contact with the upper steam-heated bowl *E*. Such calenders may be built with any number of bowls up to 12, and the bowls may be of ordinary cast-iron, chilled cast-iron, compressed cotton discs and compressed paper discs.

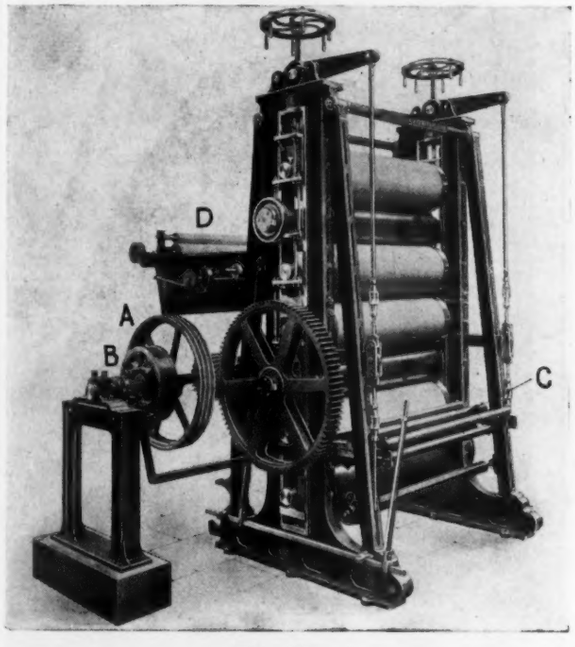


Fig. 16.

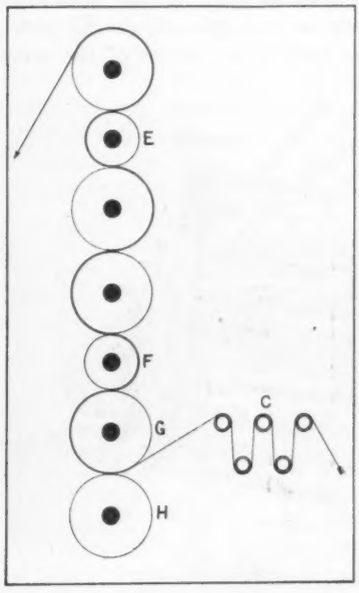


Fig. 17.

Fig. 18 illustrates a 3-bowl finishing calender as made by Mather & Platt, Ltd., Manchester. The calender is of a type used when it is required to impart to the fabric a soft finish and an agreeable handle. It is driven by the belt-pulley *J* and friction clutch *K*, but may be arranged if desired for driving by ordinary tight and loose pulleys. The middle bowl *L* is driven by means of the large gear wheel *M* from a pinion on the pulley-shaft *N*; this bowl is of chilled cast-iron, ground and polished to obtain a true, smooth surface, and is usually steam-heated. The remaining two bowls, *P* and *Q*, are of compressed paper or compressed cotton.

Pressure is applied by means of the levers R_1 and R_2, and the necessary high mechanical advantage is obtained by means of a compound system of levers and screws, not fully shown in this view. The machine illustrated is arranged for simple calender finishes on the batched fabric *S*, but it may also be arranged for use with plaiting apparatus or for chasing with multiple passage of the fabric.

Fig. 19 represents a similar machine to that just described

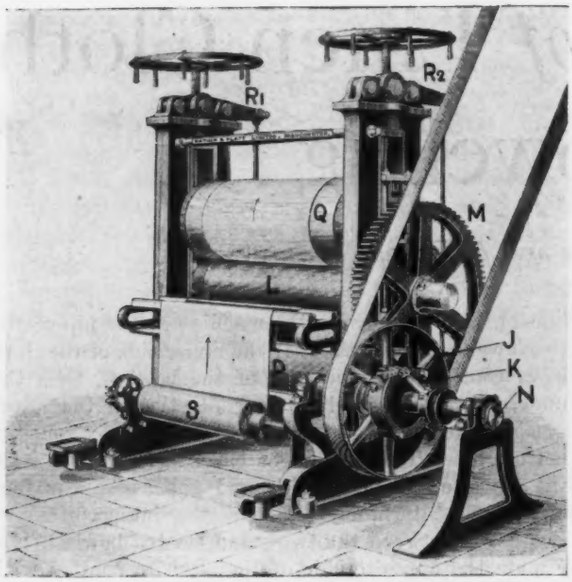


Fig. 18.

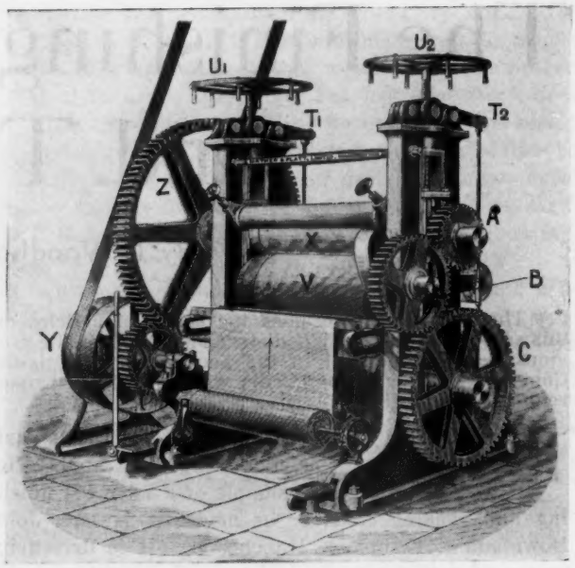


Fig. 19.

but of the opposite hand as regards the location of the source of motion, and is arranged for frictioning or glazing. The calender is suitable for fabrics requiring a moderate amount of gloss. The pressure may be "elastic" as when applied by the system of compound levers (capable of compensating movement), the last members of which are seen at T_1 and T_2; or the pressure may be "dead-set" as when applied by the screws and hand-wheels V_1 and V_2. The magnitude of the pressure, the mode of applying the pressure, the relative speeds of the rubbing bowls, etc., may all be altered as required to produce different grades of finish.

The center bowl *V* is of chilled cast-iron, and is arranged as required for steam-heating or for gas-and-air heating. The bottom bowl *W* is of compressed paper, while the top bowl *X* is of hard, close-grained cast-iron. The drive is by belt on the tight and loose pulleys *Y*, and the pinion—clearly seen on the pulley shaft—drives the top bowl *X* by means of the large gear wheel *Z*. The difference in speed necessary for glazing is secured by the remaining gear wheels *A*, *B* and *C*; the small pinion *A* drives the larger wheel *C* through the single intermediate or idler *B*.

Fig. 20 illustrates a further example of a 5-bowled "universal" calender, arranged to be capable of producing glazed and chested finishes, as well as ordinary flat or calender finishes. The machine is shown chesting on the top roller or chesting roller *D*. When the

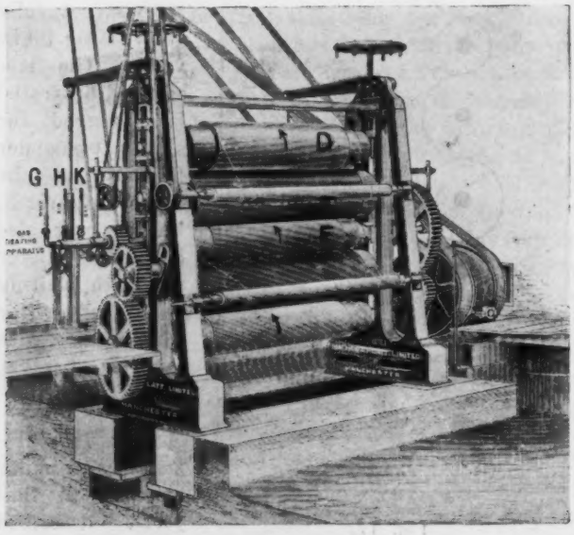


Fig. 20.

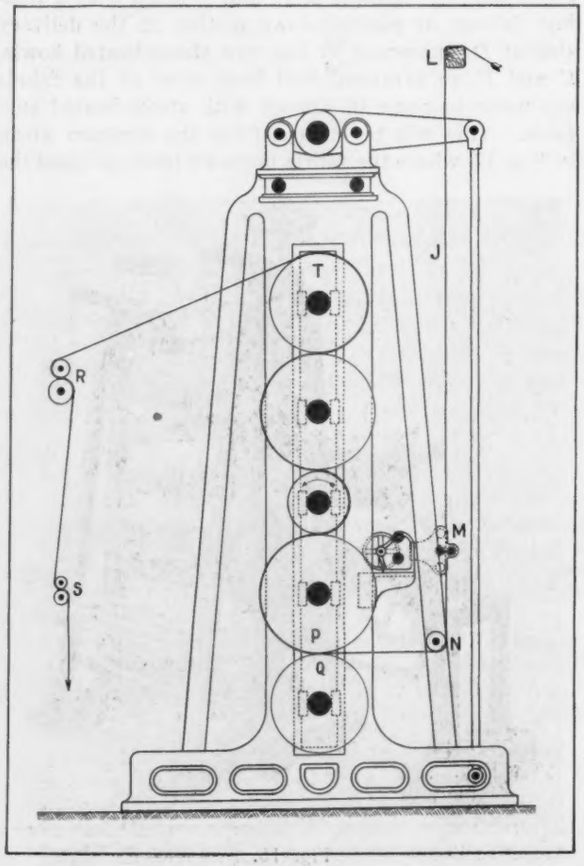


Fig. 21.

calender is used for frictioning, cast-iron blocks are provided to place between the centers of the two upper bowls *D* and *E*, and lifting-irons to raise these two bowls clear of the center bowl *F*.

This particular machine has the center bowl *F* heated by burning gas and air. The requisite quantities of gas and air are supplied through pipes *K* and *H* respectively to a mixing chamber, where the gas and the air are intimately mixed before being forced to the burners by air-pressure supplied through the pipe *G*. The illustration also gives a graphic indication of the type and extent of the foundations required for a heavy machine of this kind.

In feeding pieces to the calender, it is essential that the fabric should enter the nip of the bowls in a perfectly flat condition, without creases or curls of any kind. The operation of feeding is often done by hand, more or less effectively, and necessitates constant care and watchfulness on the part of the machine operative or attendant. To eliminate the trouble and defect of hand feeding many modern machines are fitted with automatic guiders, and Fig. 21 is a diagrammatic view of a 5-bowled calender fitted with Kay and Foxwell's patent pneumatic guider. This apparatus is operated by compressed air, and functions so that all creases and curls are completely removed at any speed, and at the same time, the cloth is led evenly to the nip of the bowls without any aid from the operator.

The method of entering the fabric is immaterial; it may be brought to the machine direct from the batched or rolled form, or over tension bars, rails, or staves, or from compensating rollers, etc. In Fig. 21, the cloth *J* is shown passing over the last of a series of tension staves *L*, and then descending vertically to the pneumatic guider at *M* after the cloth has been straightened and smoothed by the action of the guiding apparatus *M*, it passes partially round a guide-roller *N*, then approximately horizontally to the nip of the bottom iron roller *Q* and the bottom paper roller *P*. After the cloth has passed through the calender—say as illustrated in the figure—it is taken off the top bowl *T* by the stripping rollers *R*, and is finally delivered through the rollers *S* of a plaiting-down mechanism.

The action of the guiding apparatus is somewhat involved but very interesting, and readers are referred to a full description of the apparatus in "The Finishing of Jute and Linen Fabrics," 2nd Edition, by T. Woodhouse, published by Macmillan Company.

[The next installment of this discussion will appear in an early issue.—The Editor.]

Closing Oil Holes for Systematic Lubrication

IT IS interesting to note a recent development which permits the closing of all oil holes in a plant, and the lubrication of these bearings systematically and positively by the high pressure system. The Alemite Manufacturing Corp., 2650 North Crawford Avenue, Chicago, Ill., has announced drive fittings for this purpose, with which no threading is necessary, and, the company states, any oil hole can be equipped with a high pressure lubrication fitting, in less than two minutes. A reverse feather-edge bushing is driven onto the open oil hole. These bushings are made in 1/64-inch sizes from ⅛-inch to ½-inch, special bushings being available for countersunk holes and thin housings. Into the top of the bushing a nipple with dirt proof ball check valve is installed. It is pointed out that an ordinary hammer and a set of three special drive tools are the complete equipment necessary for installing this system in open oil holes.

By placing high pressure fittings in open oil holes, it is explained by the company, plant lubrication is standardized so that one standardized lubrication fitting for practically all of the plant bearings may be used, involving the use of a standard lubricant compressor, etc. The Alemite plant lubrication system, it is explained, provides for handling the lubricant from its original barrel to the bearing without exposure even to daylight.

New Oval Tube Air Heater.

Shaw-Perkins Manufacturing Co., Oliver Building, Pittsburgh, Pa., have developed a new oval tube air heater for pre-heating combustion air, industrial heating, drying, etc. A bulletin concerning it explains the saving occasioned by the recovery of heat, by means of an air heater, which is ordinarily lost in boiler stack gases, being returned to the furnace as pre-heated combustion air; as well as the gain in reducing unburned carbon to ash. It also discusses the application of air heaters for building heating, ventilating, drying, etc., etc.

To Direct Fairbanks-Morse Sales.

John A. Manley, who for the past three years has been manager of sales development for Fairbanks-Morse & Co., Chicago, Ill., has been elected vice-president in charge of sales, according to a recent announcement of the board of directors.

CURRENT TOPICS

Another Description of Cotton

COTTON is the overcoat of a seed that is planted and grown in the southern states to keep the producer broke and the buyer crazy. The fiber varies in color and weight, and the man who can guess nearest the length of the fiber is called a cotton man by the public, a fool by the farmer, a poor business man by his credi tors. The price of cotton is determined in New York, and goes up when you have sold and down when you have bought.

A buyer working for a group of mills was sent to New York to study the cotton market, and after a few days' deliberation, he wired his firms to this effect: "Some think it will go up and some think it will go down—I do too. Whatever you do will be wrong—act at once.'

Cotton is planted in the Spring, mortgaged in the Summer, and left in the field in the Winter. You can and you can't; you will and you won't—you will be damned if you do, and be damned if you don't. Anonymous.

President Hoover.

IT IS doubtful if ever before the setting of the Presidency of the United States was more auspicious than when entered into on March 4th by Herbert Hoover. And rarely has a new occupant entered that high office more auspiciously on his own account. He succeeds a man whose administration has been remarkably successful; he was perhaps the chief assistant of his predecessor with whose views he was in accord. This assures all needed continuity of policy and should portend even an improvement in the pursuit.

Mr. Hoover is better equipped in several respects than was his predecessor; for he is an engineer and a business man thrust by the force of events to the head of the world's most powerful state at a time when engineering alone bears more importantly on the problems of government than do all the fine-spun theories of academic philosophers or active practioners of politics. Practical questions of business rise more importantly now than do the subtleties of state diplomacy.

The new President is the first man of high political rank to see fully the change that has come about. "Let this problem get into the hands of the politicians, let this international question become the subject of foreign office notes, and confusion moving towards disaster will be the only result," he has said in substance many times in conferences with practical men of affairs. As Secretary of Commerce he ditched the old methods and met the public and the world on a man-to-man basis of common sense.

Will he do the same as President? Probably not so fully but yet perhaps as fully as practicable in that office whose occupant cannot always follow his natural bent.

Mr. Hoover's public life to date has been one of great popularity and a paucity of criticism; a President, to be truly great, must ignore both except as expediencies. Insofar as his own personal renown is concerned Mr. Hoover is capable of ignoring both. In subtle political expediency he may not be adept. If so, it is because of a lack of training in the rough-and-tumble spheres of politics and a mind inured to objective thinking. But to date, especially between the election and inauguration, he displayed excellent acumen even for the purely political phases of his problems. In affairs of state there have been fewer happier conjunctions of time, place and man.

It may be said that no other President has been so peculiarly entitled to the support, the sympathetic aid and the full confidence of the business men of the country. For Mr. Hoover is one of them and probably has done more for them, and without sacrifice of obligations to others, than any other public man of the day.

The new President often gives the impression of being a cold and unemotional person, a sort of human calculating machine. But it should not be forgotten that the persons for whom he has done most and for whom, whatever the claims of others upon him, he always has found time to do everything in his power are—babies. The welfare of children is the objective closest to the heart of this orphaned son of a village blacksmith, of this man who has stated frankly that he thinks usually in terms of graphs.

Some Figures Worth Noting.

STUDENTS of industrial history find much evidence supporting the view that the United States has turned the corner, as it were, in the direction of becoming fixedly for the future an industrial nation after the manner of Germany and more appropriately Great Britain. Present-day American industrialization is comparable in many ways to that of Great Britain in the 1840s and 1850s of the last century, when the British ceased trying to produce all their food and raw materials. What this last led to is indicated somewhat by figures developed by a British Board of Trade statistician.

For example, he finds that for every dollar's worth of goods disposed of in the British home market in 1924 37 cents worth went abroad. This happened, though exports in volume were 24 per cent less than in 1913. Although home consumption was much nearer the pre-war average, the falling off in exports was probably an expression if not a cause of the difficulties that have beset British national life.

The statistician finds that cotton goods constituted one-fifth of all British exports in 1928 and the figures for employment in cotton textile manufacturing there

ONE-PROCESS PICKING

Casts a giant shadow over old fashioned Picker rooms

MILL after mill is turning to Saco-Lowell One Process Picking (with Synchronized Control), as reliable reports from all sides prove its superiority over two or three process systems in regard to operating costs, cleaning, appearance of laps, and evenness yard for yard and lap for lap. Under the accumulated evidence millmen everywhere prophesy the elimination of old-fashioned picker rooms.

Synchronized Control, Saco-Lowell's contribution to this development in picking efficiency, does not necessarily call for all new picking equipment. If your Saco-Lowell pickers are reasonably up-to-date, they can be fitted with Saco-Lowell Synchronized Control, Intermediate Feeders, and certain other parts at a minimum added investment.

Among the mills installing Saco-Lowell One Process Pickers are the following:—

THE ANNISTON MFG. COMPANY
EXETER MFG. COMPANY
DANA WARP MILLS
BERKSHIRE COTTON MILLS
ROXBORO COTTON MILLS
ROANOKE MILLS COMPANY
OCONEE MILLS
LANGLEY MILLS
PACIFIC MILLS
BOOTT MILLS
CHICOPEE MFG. COMPANY
ATHENS MFG. COMPANY
BRANDON MILLS
NINETY-SIX COTTON MILLS
GREENWOOD COTTON MILLS
ALICE MFG. COMPANY
SAXON MILLS
ARAGON-BALDWIN COTTON MILLS
LANETT MILLS

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 Milk Street, BOSTON, MASS.

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.

are close to those for this country.

The analyses as a whole indicate that an industrial nation must export and that exports are in the long run more nearly a barometer of conditions than home consumption. But there is a difference between the British and American situation which should be noted. British population is far beyond the productive power of British soil; food must be imported on large scale.

What the Southern Mills are Doing

WORK is progressing at the new rayon manufacturing plant of the American Chatillon Corporation, at Rome, Ga., and it is understood that full production is expected during the first part of March. Brick houses will constitute the village, and there will be a total of 1,000 homes, each with concrete floor porches, and each equipped with bath, steam heat, electricity, etc.

Goodyear Rubber Company, which for several years has operated the Goodyear-Clearwater Mills, at Cedartown, Ga., recently announced that 20,000 spindles will be added to the present equipment, with 86 new houses being added to the village. This will give the plant a total equipment of approximately 50,000 spindles, operated day and night. The mill produces cord fabrics for tires, and this extension was probably influenced by the recent establishment of a tire plant by Goodyear at Gadsden, Ala., near Cedartown.

Eatonton Cotton Mills, Eatonton, Ga., which for some time have been idle, have been sold by J. C. Collier of Barnesville, and D. C. Collier, of Athens, to E. D. Harris, and associates, of Commerce, Ga., who, it is understood, plan to place the mill in early operation.

Scottdale Mills, Scottdale, Ga., have replaced their spooling and slow speed warping equipment with a complete installation of Foster high speed winders and magazine cone creels, and Cocker high speed beam warpers. The mill is concluding the installation of considerable additional equipment, whose production is included in the new system of winding and warping.

Robert and Co., Inc., Atlanta, Ga., engineers, have announced details for the extension of the Martha Mills, at Thomaston, Ga., which was recently taken over by the B. F. Goodrich Rubber Co. When proposed extensions are completed, the main mill building will be three stories high, 135 x 1100 feet. The picker building and raw cotton storage building will be two-story, 120x450 feet; and the boiler plant will be double story, 40x70 feet. The village will be extended by the addition of approximately 450 houses for operatives, and a new filter plant and water supply system from Potato Creek will be installed. When extended, the plant, which manufactures automobile tire fabric, will contain approximately 80,000 spindles. The original mill contained 30,000 spindles.

Carolina Dyeing and Winding Co., Mt. Holly, N. C., have let contract for a 50x85 foot addition to the plant, as well as for a large storage warehouse. Hickory Spinning Co., Hickory, N. C., and the United Mills Co., Mortimer, N. C., have been merged into one corporation, to be known as the Hickory Spinning Co. A. B. Hutton is president, and J. B. Duval, secretary. The capitalization is $1,200,000.

Hanover Mills, Inc., the Pinkney Mills, Inc., and the Rankin Mills, Inc., all of Gastonia, N. C., have been merged into a new organization known as the Hanover Mills, Inc. A. G. Myers is president, and R. G. Rankin secretary-treasurer.

Proximity Mfg. Co., Greensboro, N. C., have let contract for the erection of 40 brick houses, to cost approximately $112,000.

Dixie Throwing Company, a new silk plant of 5,000 spindles at Greensboro, N. C., has started operations. It is reported that the company plans the location of another plant near Greensboro.

Oakland Mills, Inc., a division of Kendall Mills, Inc., Newberry, S. C., have let contract for an addition 40 x 101 feet, two stories.

Neely-Travora Mills, York, S. C., will build a one-story addition, 40 x 143 feet, and additional residences will be erected to provide for additional employees required by new equipment which will be installed.

Addison Mills division, Kendall Mills, Inc., Edgefield, S. C., will erect a number of modern houses in the village, to be of wood, stucco and brick. Other village improvements also are planned.

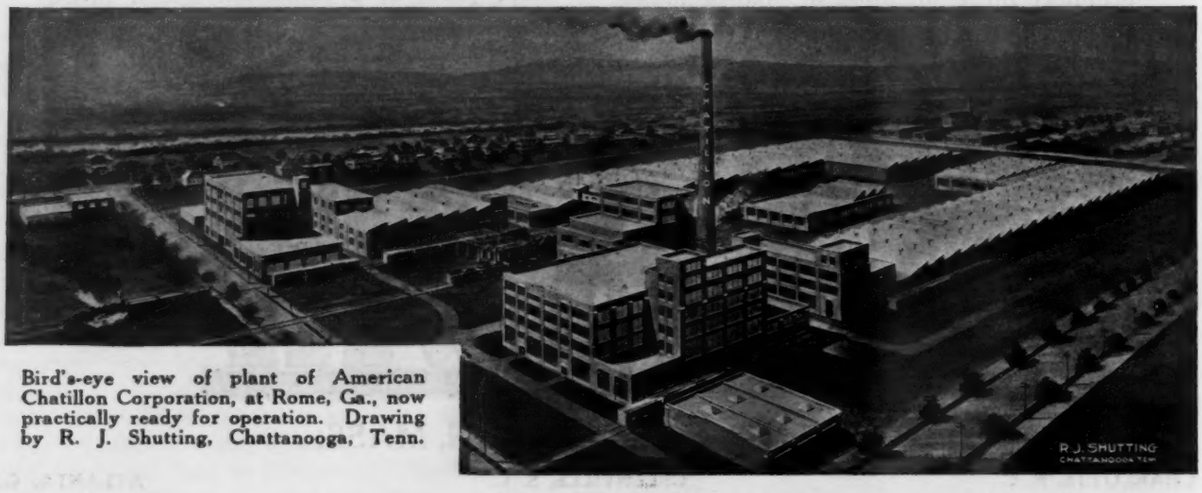
It is reported definitely that H. A. Ligon, of Spartanburg, S. C., and associates, will erect a $1,000,000 bleachery and finishing plant on the site six miles west of Spartanburg. It is understood that the plant will be equipped to finish approximately 2,000,000 yards weekly, of piece-goods, including cotton, silk and rayon materials.

American Glanzstoff Corporation, Elizabethton, Tenn., are installing a new 3,000-kw. turbine, an additional boiler, and other equipment. Lockwood, Greene, Engineers, are in charge.

Donald Comer, representing the Avondale Mills, Birmingham, Ala., has purchased the Eufaula Cotton Mills, Eufaula, Ala., from L. L. Comer and C. A. O'Neal.

Walcott and Campbell Company, of Utica, N. Y., will remove their cotton mill to Gulfport, Miss., according to report.

Icemorlee Mills Co., Monroe, N. C., have been taken over by Union Mills Company, which has an authorized capital of $200,000. Among those interested are C. W. Johnston, R. H. Johnston and W. H. Belk, of Charlotte, N. C. The new owners will place the mill in operation immediately, it is stated.



Bird's-eye view of plant of American Chatillon Corporation, at Rome, Ga., now practically ready for operation. Drawing by R. J. Shutting, Chattanooga, Tenn.

In Perfect Condition After 34 Years of Continuous Service

The advanced engineering and durable construction of H & B Revolving Top Flat Cards are clearly demonstrated by the remarkable records of long troubleproof service they have established.

Take a typical case: We installed 24 H & B Cards in a New England mill in 1895. These cards have been in continuous operation ever since, producing over 800 pounds per card a week. During all this time only one cylinder fillet has been renewed. The mill reports that these cards today are turning out a sliver as uniform and as high in quality as the day they were installed.

When you invest in H & B Cards you get machines that will retain their alignment and perfect setting, and consistently turn out quality work over a long period of years.

Specifications, production figures, and names of users will be gladly furnished. Simply say you want them.

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814-816 ATLANTA TRUST CO. BLDG., ATLANTA, GA.

BUILDERS OF COTTON PREPARATORY AND SPINNING MACHINERY

are close to those for this country.

The analyses as a whole indicate that an industrial nation must export and that exports are in the long run more nearly a barometer of conditions than home consumption. But there is a difference between the British and American situation which should be noted. British population is far beyond the productive power of British soil; food must be imported on large scale.

What the Southern Mills are Doing

WORK is progressing at the new rayon manufacturing plant of the American Chatillon Corporation, at Rome, Ga., and it is understood that full production is expected during the first part of March. Brick houses will constitute the village, and there will be a total of 1,000 homes, each with concrete floor porches, and each equipped with bath, steam heat, electricity, etc.

Goodyear Rubber Company, which for several years has operated the Goodyear-Clearwater Mills, at Cedartown, Ga., recently announced that 20,000 spindles will be added to the present equipment, with 86 new houses being added to the village. This will give the plant a total equipment of approximately 50,000 spindles, operated day and night. The mill produces cord fabrics for tires, and this extension was probably influenced by the recent establishment of a tire plant by Goodyear at Gadsden, Ala., near Cedartown.

Eatonton Cotton Mills, Eatonton, Ga., which for some time have been idle, have been sold by J. C. Collier of Barnesville, and D. C. Collier, of Athens, to E. D. Harris, and associates, of Commerce, Ga., who, it is understood, plan to place the mill in early operation.

Scottdale Mills, Scottdale, Ga., have replaced their spooling and slow speed warping equipment with a complete installation of Foster high speed winders and magazine cone creels, and Cocker high speed beam warpers. The mill is concluding the installation of considerable additional equipment, whose production is included in the new system of winding and warping.

Robert and Co., Inc., Atlanta, Ga., engineers, have announced details for the extension of the Martha Mills, at Thomaston, Ga., which was recently taken over by the B. F. Goodrich Rubber Co. When proposed extensions are completed, the main mill building will be three stories high, 135 x 1100 feet. The picker building and raw cotton storage building will be two-story, 120x450 feet; and the boiler plant will be double story, 40x70 feet. The village will be extended by the addition of approximately 450 houses for operatives, and a new filter plant and water supply system from Potato Creek will be installed. When extended, the plant, which manufactures automobile tire fabric, will contain approximately 80,000 spindles. The original mill contained 30,000 spindles.

Carolina Dyeing and Winding Co., Mt. Holly, N. C., have let contract for a 50x85 foot addition to the plant, as well as for a large storage warehouse. Hickory Spinning Co., Hickory, N. C., and the United Mills Co., Mortimer, N. C., have been merged into one corporation, to be known as the Hickory Spinning Co. A. B. Hutton is president, and J. B. Duval, secretary. The capitalization is $1,200,000.

Hanover Mills, Inc., the Pinkney Mills, Inc., and the Rankin Mills, Inc., all of Gastonia, N. C., have been merged into a new organization known as the Hanover Mills, Inc. A. G. Myers is president, and R. G. Rankin secretary-treasurer.

Proximity Mfg. Co., Greensboro, N. C., have let contract for the erection of 40 brick houses, to cost approximately $112,000.

Dixie Throwing Company, a new silk plant of 5,000 spindles at Greensboro, N. C., has started operations. It is reported that the company plans the location of another plant near Greensboro.

Oakland Mills, Inc., a division of Kendall Mills, Inc., Newberry, S. C., have let contract for an addition 40 x 101 feet, two stories.

Neely-Travora Mills, York, S. C., will build a one-story addition, 40 x 143 feet, and additional residences will be erected to provide for additional employees required by new equipment which will be installed.

Addison Mills division, Kendall Mills, Inc., Edgefield, S. C., will erect a number of modern houses in the village, to be of wood, stucco and brick. Other village improvements also are planned.

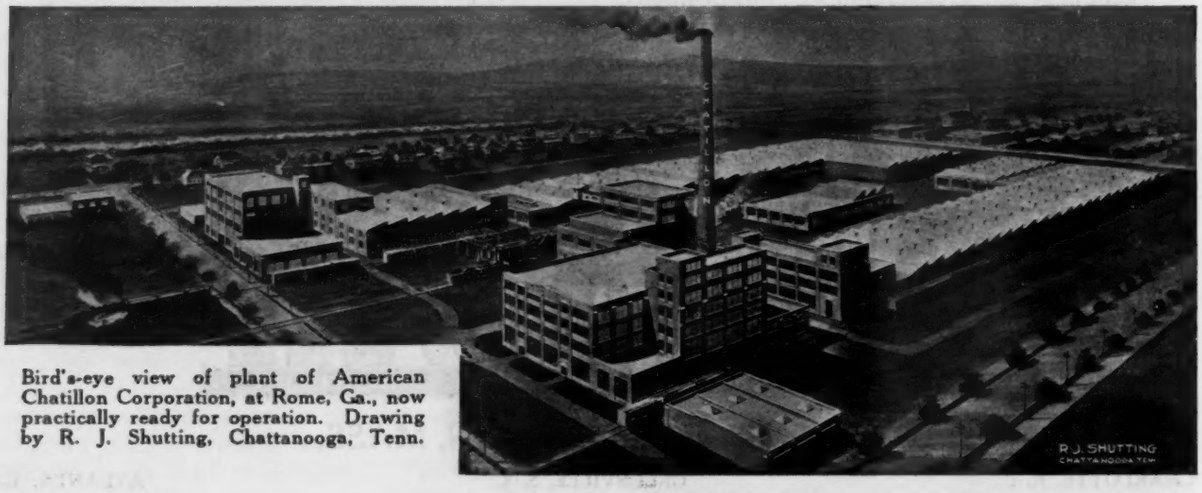
It is reported definitely that H. A. Ligon, of Spartanburg, S. C., and associates, will erect a $1,000,000 bleachery and finishing plant on the site six miles west of Spartanburg. It is understood that the plant will be equipped to finish approximately 2,000,000 yards weekly, of piece-goods, including cotton, silk and rayon materials.

American Glanzstoff Corporation, Elizabethton, Tenn., are installing a new 3,000-kw. turbine, an additional boiler, and other equipment. Lockwood, Greene, Engineers, are in charge.

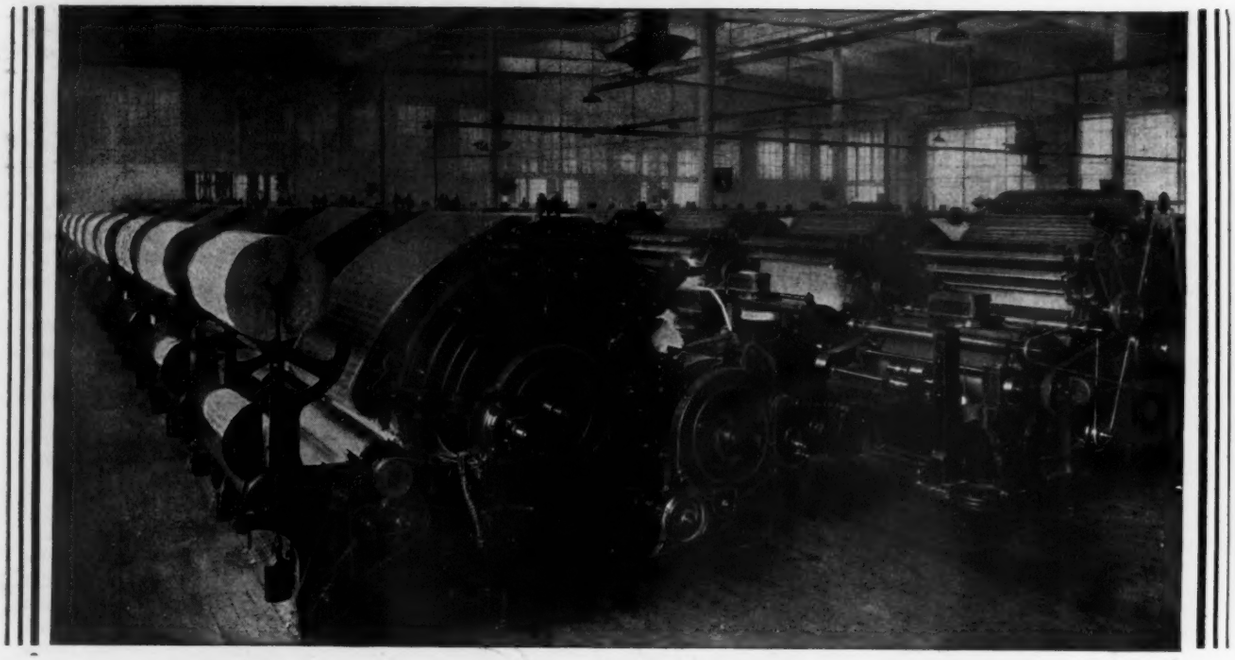
Donald Comer, representing the Avondale Mills, Birmingham, Ala., has purchased the Eufaula Cotton Mills, Eufaula, Ala., from L. L. Comer and C. A. O'Neal.

Walcott and Campbell Company, of Utica, N. Y., will remove their cotton mill to Gulfport, Miss., according to report.

Icemorlee Mills Co., Monroe, N. C., have been taken over by Union Mills Company, which has an authorized capital of $200,000. Among those interested are C. W. Johnston, R. H. Johnston and W. H. Belk, of Charlotte, N. C. The new owners will place the mill in operation immediately, it is stated.



Bird's-eye view of plant of American Chatillon Corporation, at Rome, Ga., now practically ready for operation. Drawing by R. J. Shutting, Chattanooga, Tenn.



In Perfect Condition After 34 Years of Continuous Service

The advanced engineering and durable construction of H & B Revolving Top Flat Cards are clearly demonstrated by the remarkable records of long troubleproof service they have established.

Take a typical case: We installed 24 H & B Cards in a New England mill in 1895. These cards have been in continuous operation ever since, producing over 800 pounds per card a week. During all this time only one cylinder fillet has been renewed. The mill reports that these cards today are turning out a sliver as uniform and as high in quality as the day they were installed.

When you invest in H & B Cards you get machines that will retain their alignment and perfect setting, and consistently turn out quality work over a long period of years.

Specifications, production figures, and names of users will be gladly furnished. Simply say you want them.

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814-816 ATLANTA TRUST CO. BLDG., ATLANTA, GA.

BUILDERS OF COTTON PREPARATORY AND SPINNING MACHINERY

COTTON COMMENT

By H. & B. Beer--

New Orleans, February 16th, 1929.

AS THE season advances, more interest is being taken in prospects for the next cotton crop, which is reflected in a somewhat more active market of late. Because of the larger ginnings than were generally expected to January 16th, Census report on which was issued January 23rd, showing 13,891,857 bales, the market was under pressure during the greater part of the early period under review, but reports of light fertilizer sales, a marked improvement in the monthly textile report, and large domestic consumption for January, the largest on record for that month, created an upward tendency in values, but offerings were free on bulges.

Finals for the period, compared with one month ago, show slight to moderate declines on old crop positions, but moderately higher for new crop deliveries; the discount on October compared with May, which was about 52 points on January 19th, being only about 18 points off May today, the discount having narrowed about 34 points during the period, reflecting the uncertainty as to the new crop outlook, and because of prospects for a world carry-over at the close of this season smaller than at the close of last season, apparently making it imperative for the making of a much larger crop this year for next season's requirements.

During the last week of January and the first week of February there was a falling off in the demand for spots in the South, sales running somewhat smaller than for corresponding time last year, but there has been improvement in the demand of late, sales at reporting Southern markets for week ending yesterday amounting to 86,082 bales against 65,436 for corresponding week last year, and today sales at the same markets total 18,342 bales against 9,590 this date last year.

ASSOCIATION OF COTTON TEXTILE MERCHANTS JANUARY STATISTICS

Yards	January 1929	January 1928
Production	342,806,000	297,669,000
Sales	317,078,000	194,114,000
Shipments	345,354,000	266,947,000
Stocks	389,195,000	367,223,000
Unfilled orders	440,585,000	313,893,000

Compared with last season, exports from the United States during the past week were 113,784 bales against 146,907, since August 1st, 5,965,932 against 4,991,671, Canada included.

Since August 1st, the South has marketed 13,201,946 bales against 11,825,351 to corresponding date, February 15th, last season, of which 165,512 bales were brought into sight the past week compared with 142,543 for same week last year.

SPINNERS TAKINGS OF AMERICAN COTTON

Bales—	This Season	Last Season
Past Week	315,000	244,000
Since August 1st, divided as follows:		
North and Canada	1,260,000	1,344,000
South	3,717,000	3,452,000
Foreign Spinners	4,992,000	4,879,000
World	9,969,000	9,675,000

CENSUS REPORT

United States—Bales	This Season	Last Season
January consumption, inc. linters	736,941	642,280
Consumption, 6 months, inc. linters	3,860,859	4,033,233
Mill Stocks, January 31st	1,767,742	1,708,646
Stocks in public storage, Jan. 31	4,615,337	5,013,611
Stocks in public storage and mills	6,383,079	6,722,257
Active spindles during January	30,757,552	31,716,746

WORLD'S VISIBLE SUPPLY OF COTTON

February 15 Bales	This Year	Last Year
American	5,581,120	5,599,277
Other Kinds	2,170,000	1,716,000
All kinds	7,751,120	7,315,277

The status of the cotton situation, so far as American cotton, which dominates, is concerned, apears healthy, with the present visible and indicated invisible, exclusive of world mill stocks, apparently about the same as one year ago, especially since the demand for spots and spinners takings continuing to run larger than at this time last year.

The New Crop Outlook.

While it is rather premature to dwell upon this subject, the impression prevails that there will likely be little or no increase in this year's acreage in the South Atlantic States, perhaps a slight increase in the central belt, and probably a moderate increase in the western belt. Sales of fertilizer, however, are reported smaller than last year, for December and January 26.6 per cent less than for same period last season. Plowing is reported generally somewhat backward, but some observers say that preparations are up to normal for this time of the year. However, the soil is reported as being in good condition because of a good season in the ground, especially in Texas where the average rainfall, November to Jauuary inclusive, measures 7.44 inches against 3.84 last season, 6.73 season before last and normal of 6.33.

New England Mill Situation.

February 16th, 1929.

THE noticeable revival of business activity in the textile field in New England has continued during the past month. Fancy and specialty mills are better employed than they have been for more than a year and the recovery of business in fine textiles has been remarkable in the past three or four weeks. The effects of the prolonged curtailment of production brought on by the New Bedford strike and other depressed conditions of last year are being felt in the markets, and converters have been ordering goods more freely and in wider variety than at any time since the last quarter of 1927.

The business is of a rush character, necessitating much overtime work in various preparatory departments. It takes several weeks to produce the fine yarns required and manufacturers have declined to accumulate yarns in anticipation of business. Moreover, they were unable to forecast the trend of demand and this led to unusual caution in preparing stocks for weaving.

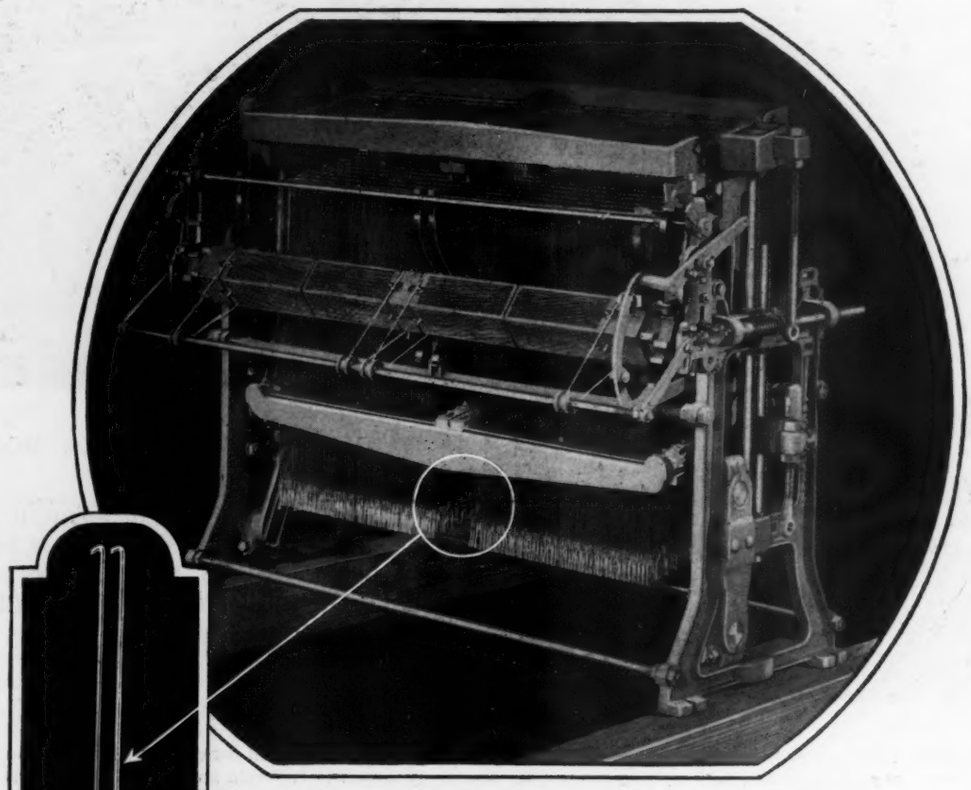
The variety of demand is very remarkable and is a picture of the new conditions that have come about in merchandising in all textile lines. Fancies and specialties are wanted more freely than the staples of other days and orders are not large although frequent. New Bedford has been doing business on lawns, voiles, poplins, piques, dimities, organdies, shirtings, gabardines, fine sateens and an innumerable variety of specialties in cotton and silks, all-rayon and rayon and cotton mixtures.

In the past week there has been a very active demand for sheer fabrics such as voiles, fine batistes and crepes of all-rayon and rayon mixtures. The goods are wanted as fast as they can be produced and sent to the finishers. The lack of provision for the Spring season by the converting trade has been disclosed by the feverishness with which some orders have been sent in.

The conditions of growing activity in the New Bedford field have a parallel in the mills of Rhode Island and Connecticut that are wound up to produce combed yarns or specialty fabrics. From all that appears at this time there will be business enough coming forward to keep the mills pretty well occupied into May and June.

The new rush of business has brought about all possible activity in finishing plants equipped to do printing. There has also been a very substantial run of business on bleached cottons and some of the plants engaged solely on bleaching are busier than they have been for several months. The printing plants of the whole section are operating to an average of 96 per cent capacity while the total average percentage of all plants occupied is 75, the highest touched in many months. There is still a dearth of business in many of the dyeing plants and in the fast black plants, but orders have been increasing in the past week or two quite generally. The corporation printers are fully occupied and several of them are running nights trying to make required deliveries.

A SERIES OF ADVERTISEMENTS SPOTLIGHTING 2 SPECIAL FEATURES OF HALTON JACQUARDS



Why Do Halton Jacquards *Have Needles and Hooks Made Especially For Them?*

BECAUSE needles, hooks, and springs are a vitally important part of a Jacquard Machine, the special high carbon wire, strong and flexible, is thoroughly inspected and tested before the machine is ready to produce.

Thomas Halton's Sons, throughout their 53 years of experience, have originated or introduced into this country every successful departure from the ordinary Single Lift Machine. Performance and durability guarantee satisfaction for all textile manufacturers who require delicacy and accuracy of design.

See Also CONSOLIDATED TEXTILE CATALOG

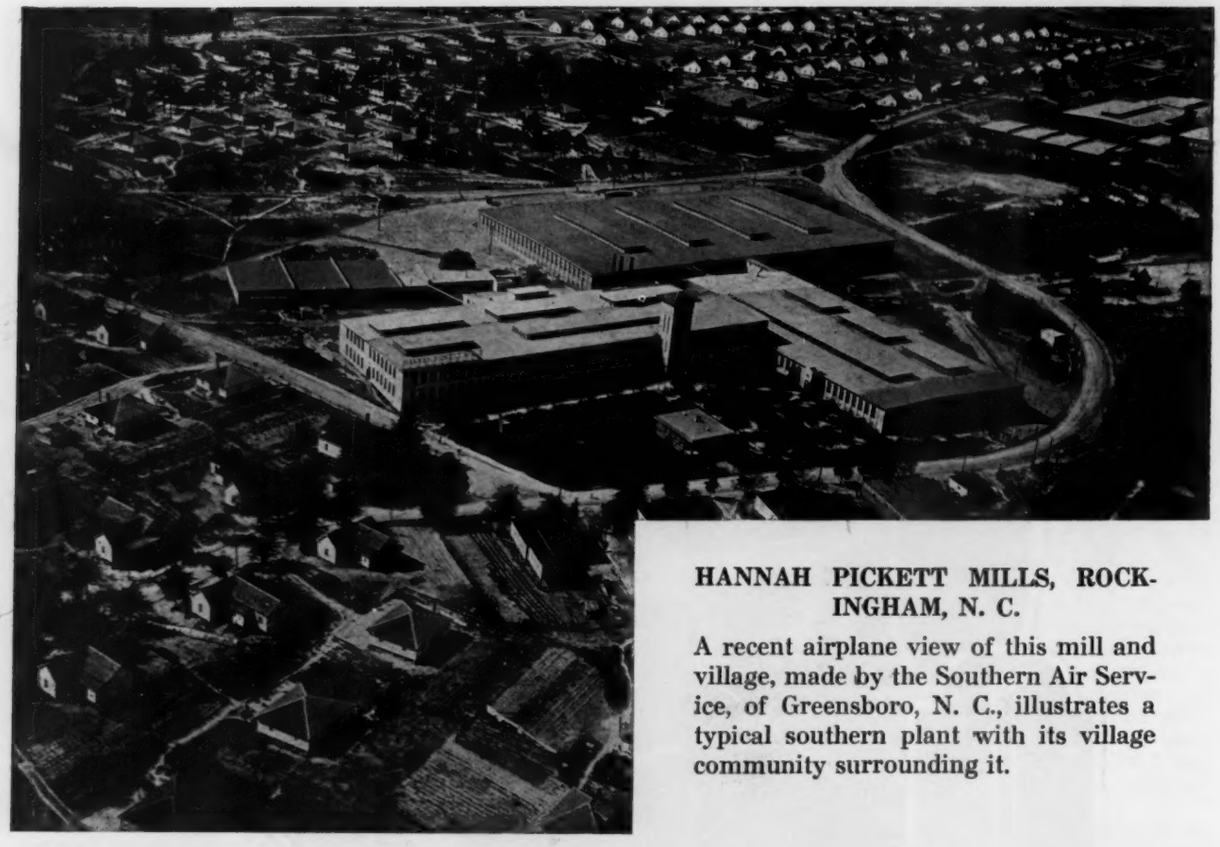
THOMAS HALTON'S SONS

Mascher St., Below Oxford, Phila., Pa.

Selling Agent
H. A. FORBES
P. O. Box 1663, Paterson, N. J.
Telephone Lambert 8592-W

Southern Representative
FRED H. WHITE
304-8 Independence Bldg.,
Charlotte, N. C.

• A HALTON JACQUARD FOR EVERY DESIGN AND PURPOSE •



HANNAH PICKETT MILLS, ROCKINGHAM, N. C.

A recent airplane view of this mill and village, made by the Southern Air Service, of Greensboro, N. C., illustrates a typical southern plant with its village community surrounding it.

There has been a very steady business on sheets and pillow cases of the finer qualities and colored hem goods are selling very well. The solid color sheets are not doing relatively as well as the colored hem lines. Mills in Maine and New Hampshire are busier than at any time since early last year and in fact some of them are running to greater capacity than at any time in over two years. The large Pepperell plant is slated to have as many as 3,000 looms operating on sheetings for domestic purposes, a large proportion of which are colored. Bedspread mills continue unusually active and the Bates Co. in Maine is slated to be more fully occupied than it has been for several years due to the character of its styling of rayon and cotton merchandise. The pillow tubing business has recovered and is more active than it has been for some time.

The Amoskeag at Manchester, N. H., is very busy on fancy flannels for the Fall season. Its business on the wide goods has been better than at any time for several years. It is also doing a larger business on ginghams than at any time in the past three years and while its large loomage available for goods of this character is only occupied to about 40 per cent the gain is considerable when measured against the dullness in these lines in recent years.

There has been a larger demand for cotton and silk mixtures for printing and converting than mills have known for many months. It would seem as if merchandising stocks in distributing channels have been virtually exhausted as the calls for quick shipments of many staple, canton and other silks have come from all parts of the country and in particular from the converting trades. The demand in the past week or two for rayon crepes and fine voiles has been very active, again showing a depletion of stocks in what were considered staples of the business available for spring and summer processing.

From this improved picture of conditions at the moment it might easily be inferred that New England has completed the liquidation of many of the plants that have been in difficulties for a long time. The fact is that the recovery has been so general that there is a disposition now to hasten the liquidation of idle properties and what is going on with them is attracting less attention than it was last year when depression was general and when strike talk was discouraging all textile investment.

Fall River is finally beginning to give indications of recovery from the lethargy that settled on that city after the great fire of a year ago. The wiping out of the whole center of the business section intensified a depression that had been growing more serious in the textile mills for some time. Now that the burnt district is being rebuilt and that the Loring merger has finally reached a stage where the Arkwright Mills have been reorganized, more optimism is noticeable in this large center.

Preparations are being made to liquidate and possibly reorganize some of the idle print cloth mills at Fall River. Cotton was run through the pickers of the reorganized Arkwright Mills this week and it is hoped to have the plant in full operation before the latter part of April. Combers have been installed and a rearrangement of machinery effected and it is proposed to operate the plant until 10 o'clock at night at least and thus reduce the costs of production.

In this city and indeed in most of the New England cen-

(*Continued on page* 609.)

Union Bleachery to Build Print Works.

ANNOUNCEMENT was made last month that the Union Bleachery, Greenville, S. C., will erect a print works to cost approximately $250,000. The building will be one and two-story, 175x235 feet. J. E. Sirrine & Company are the engineers. No separate company will be formed, the print works being operated by the Union Bleachery.

What Price Lubrication?

Between theoretically perfect lubrication and the average lies a wide field paved with wasted dollars.

Texaco Lubrication Service saves these dollars.

In industrial plants of all kinds throughout the world, in the land transportation systems, in marine service and in the great mining plants of the world, Texaco engineers are daily opening the way to better lubrication.

For The Texas Company is a great "complete cycle" organization. It manufactures a Texaco lubricant for every purpose. It owns and operates its own wells, pipe lines, refineries, manufacturing plants and transportation facilities. It is a company that provides a complete lubrication service.

Texaco lubrication engineers are specialists—retained to cooperate with you—to study your every requirement and specify exactly the proper lubricant in every case.

And wherever you are, no matter how great the range of your operations, this service, and the same uniformly high quality lubricants are always freely available.

TEXACO LUBRICANTS

THE TEXAS COMPANY

17 BATTERY PLACE, NEW YORK CITY

Offices in Principal Cities

THERE IS A TEXACO LUBRICANT FOR EVERY PURPOSE

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

Joseph C. Cobb has been elected secretary-treasurer of the Southern Textile Association, succeeding J. M. Gregg, taking office February 1st. Mr. Cobb is a graduate of the North Carolina Textile School, and for several months has been associated with Carl R. Harris, superintendent of the Erwin Cotton Mills, Cooleemee, N. C., and president of the Southern Textile Association. He is a son of F. Gordon Cobb, general manager of the Lancaster Cotton Mills, Lancaster, S. C. "Joe" has a background of textile training, and an especially attractive personality, and his appointment is noted with interest by his friends. He is also secretary-treasurer of The Arkwrights, Inc., the research organization of the Association.

James Murphy Gregg, who recently resigned as secretary-treasurer of the Southern Textile Association, and Miss Olive Watkins, of Charlotte, N. C., were married on February 1st, and are at home at 300 Rockledge Apartments, Charlotte, N. C.

W. L. Phillips, for a number of years superintendent of the Social Circle Cotton Mills, Social Circle, Ga., has resigned to become associated with the Strowd-Holcombe Textile Mills, Birmingham, Ala. He was succeeded at Social Circle by J. J. Hyder, formerly overseer of weaving at that mill.

Z. H. Mangum, superintendent of the Avondale Mills plant at Birmingham, Ala., has been promoted to general superintendent of all of the mills operated by the company.

E. J. Boswell has been promoted from night superintendent to general superintendent of the Whitehall Yarn Mill, Whitehall, Ga.

Robert F. Dellinger has been made superintendent of the Lockmore Mills ,York, S. C.

F. C. Spence has become overseer of weaving at the Anchor Duck Mills, Rome, Ga.

G. W. Williams recently became overseer of carding at the Chesnee Mills, Chesnee, S. C.

Frank Inman has been made overseer of carding at the Eureka Cotton Mills, Chester, S. C.

Julian Butler has resigned as superintendent of the Cape Fear Cotton Mills, Fayetteville, N. C.

George E. Weber, Jr., who has been treasurer and manager of the Park Yarn Mills Co., Kings Mountain, N. C., has resigned to become associated with Wellington, Sears & Co., New York City.

William Scheller is manager and superintendent of the Diamond Full-Fashioned Hosiery Mills, High Point, N. C., recently organized by W. H. Slane and associates. Mr. Scheller was formerly with the Meinig Hosiery Co., Reading, Pa.

S. Robert Glassford, of Bliss, Fabyan & Co., Inc., has been elected president of the Association of Cotton Textile Merchants of New York. Perry S. Newell was re-elected secretary. T. Holt Haywood is vice president and Elroy Curtis treasurer.

Edgar H. Bristol, president of the Foxboro Co., Foxboro, Mass., sailed from New York on the S. S. Santa Teresa, on January 31st, for an extensive tour through South America.

L. H. Hill, for many years secretary, was named president of the Newnan Cotton Mills, Newnan, Ga., succeeding the late R. W. Freeman. Welborn Hill is now secretary, and R. D. Cole vice-president.

A. P. Sears, of Atlanta, representative of Finnell System, Inc., Elkhart, Ind., manufacturers of floor scrubbing equipment, recently was awarded a Diamond Emblem by the company, representing a most unusual and interesting record. The emblem was awarded in recognition of Mr. Sears' having attained, for five years in succession, membership in the company's 100 per cent club—that is, those representatives attaining 100 per cent of their sales quota each year. He has the distinction of being the only man to whom this award has been made.

B. E. Thurness has been transferred from the Dayton, Ohio, office to the Cleveland office of York Heating & Ventilating Corporation, and is now manager of the Cleveland office, succeeding H. V. Heard, resigned. The Dayton office has been removed to Cincinnati, where J. E. True, formerly of the New York office, is manager. G. W. F. Myers, formerly of the Philadelphia office, has been transferred to St. Louis, where, as manager, he has opened up a new office, and M. K. Clarke, formerly of Philadelphia, has been made manager of a new office in Louisville, Ky.

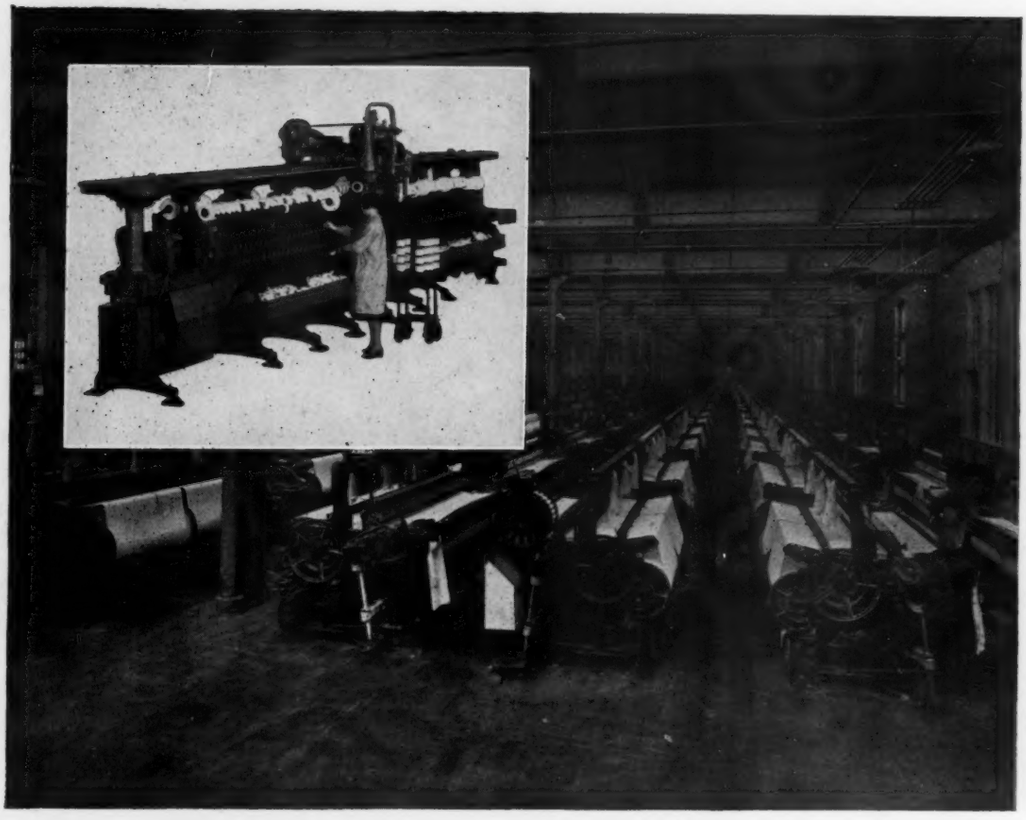
Dr. Robert Reiner, president of Robert Reiner, Inc., Weehawken, N. J., producers of the Einsiedel "Reiner" full-fashioned hosiery machines, was in Germany prior to the historic flight of the huge Graf Zeppelin from Germany to the United States, and was the first individual to apply for passage on the trip. He was aboard on the historic trip. It is interesting further to report that Dr. Reiner left New York on February 1st on the "Aquitania", this being his fiftieth trip from America to Europe. His particular mission on this trip is to speed up deliveries of equipment.

Walter S. Montgomery, Sr., president and treasurer of the Spartan Mills, Spartanburg, S. C., and interested in other textile enterprises, was killed on January 31st in an automobile accident occurring near Columbia, S. C. Mr. Montgomery is survived by his widow, one son, W. S. Montgomery, Jr.; two daughters, Mrs. Fred Oates, of Asheville, and Mrs. John Cart, of Spartanburg; two brothers, Victor M. Montgomery and Ben M. Montgomery, of Spartanburg, and several grandchildren.

J. Wheeler Mears, Sr., 66, superintendent of the Monroe Cotton Mills, Monroe, Ga., died on February 15th. He had been in the cotton mill business since early youth, and was one of the best known operating executives of the South.

T. J. Feeney has resigned as superintendent Mill No. 2, Esmond Mills, Esmond, R. I., to become connected with the Hamilton Cotton Co., Hamilton, Ontario, Canada.

"EVERY KNOT A WEAVER'S KNOT"



EFFECT OF SPOOLING AND WARPING ON WEAVE ROOM PRODUCTION

Here Is One Mill's Record

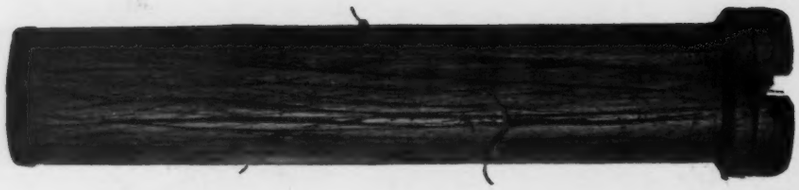
A well-known mill near Greenville, S. C. recently installed Barber-Colman Spoolers and Warpers. Their weave room production during a stated monthly period after the installation was completed was 2% higher than any previous record and the seconds were 1.19%. This mill's records for several previous months show an average of 2.96% seconds when old type spooling and warping were in use.

Think This Over!

BARBER-COLMAN COMPANY

General Offices and Plant

FRAMINGHAM, MASS ROCKFORD, ILL., U. S. A. GREENVILLE, S. C.



Do These Bobbins Look Familiar?

THERE is more than one mill in the country that is using bobbins as bad as these. Good yarn cannot be made on poor bobbins.

U S Card Room Bobbins are guaranteed to a definite degree of uniformity. The same careful attention is given to selection of stock, finish, and spindle, bolster, and gear fits that makes U S products the choice of the majority of mills.

Why not look over your Card Room Bobbins today? Ask yourself if you are imposing a handicap on your carders, and replace some of those old bobbins with U S better bobbins.

Write, wire, or 'phone our nearest U S service man to help you adopt standard sizes if you do not already have them.

U S BOBBIN & SHUTTLE CO.

GREENVILLE, S. C.

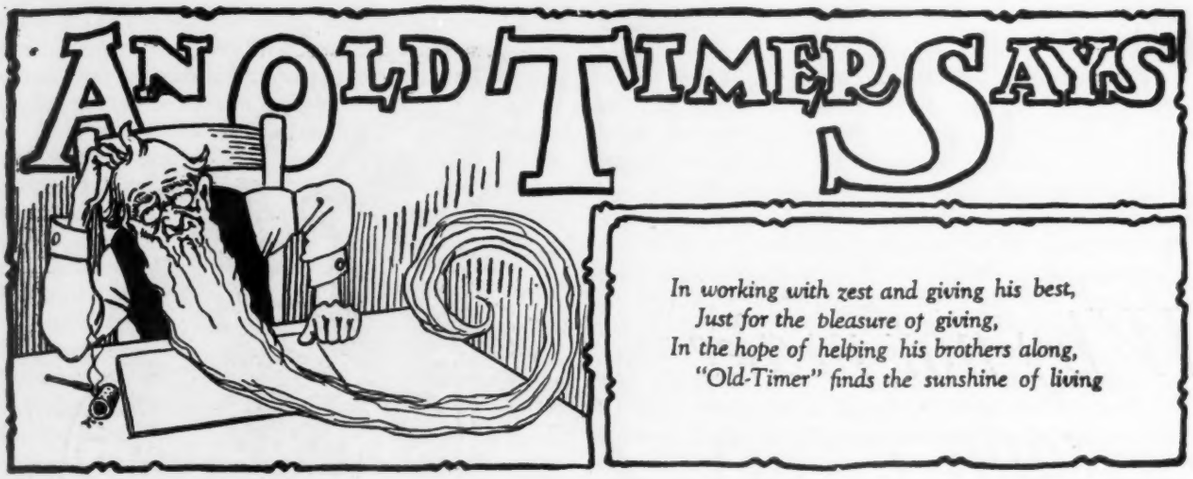
Main Office:

PROVIDENCE, R. I.

Branch Offices:

HIGH POINT, N. C. PHILADELPHIA, PA. ATLANTA, GA.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the bleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

"Two-Thirds of *Promotion* is *Motion*"

P—r—o—m—o—t—i—o—n——

Nine letters spell promotion—a very simple word—very easy to spell—very easy to pronounce—but a darned hard word for the average man, young or old, to learn the practical meaning of.

Please notice carefully that the last six letters of the word spell *motion*, and as there are nine letters in promotion, then two-thirds of promotion is *motion*.

One of the definitions Funk and Wagnall's Dictionary gives of the word "motion" is: "An impulse to action".

Have You Got It?

Most all overseers and superintendents have that "impulse to action" when they first go on the job, but in two or three years they beginto drift; they begin to lose interest; they begin to find so confounded many things to do to take up their time which is not helping to run the job.

When the average overseer or superintendent goes on the job he would not think of letting any of his men get on the job before he does; he would not think of passing by that weaver who has four or five looms standing, without doing something about it.

He would not stand for letting that loom fixer use two or three shuttles on one loom in one year, without going to that loom to see what is wrong. He would not let his grinders set up cards for months at a time without putting the gauges on some of them himself. And great guns! look at that pile of bad filling. He prided himself two years ago on not having a bobbin on the floor. And seconds—well, his seconds are still pretty good, even if they have gone up one or two per cent!

Does he realize that one per cent seconds will oftentimes amount to his salary?

Of course you have heard that age-old axiom, "A new broom sweeps clean"—well, the guy who first said those few words sure did know his apples, onions, or whatever these young fellows say these days.

Yes, it is hard to realize, I know, but the average overseer and superintendent in two or three years on the same job begins to lose that two-thirds of promotion to which I have referred in the foregoing, and as a result of losing motion, or the "impulse to action", he of course is losing his chance of the whole word—"Promotion".

You've Done It Yourself!

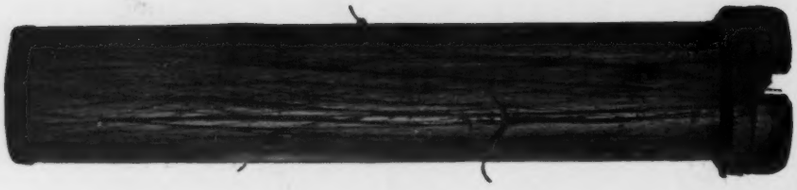
When the average overseer or superintendent takes a job you will see him going up and down the alleys in the spinning room looking for vibrating spindles, weight levers down, dirty rolls, slack bands, dry spindles, white cotton on floor, and all the other things which most any good overseer or superintendent knows to look for.

You will see him going down alleys in the weave room looking over cloth for double threads, misdraws, bad selvages, tight and loose tensions, and calling section men's attention to temples too high or too low or vibrating too much. A temple should be set so that the lay would give it only motion enough to make the temple roll or burr take hold of the cloth to hold the cloth at as near full width of yarn in reed as possible. To set a temple to have a stroke of one-half or more, defeats the very purpose for which the temple is put on the loom, and greatly reduces the life of the temple by wear.

You will see him stop looms with full warps to see if the fixer has set the harnesses; he will notice the pickers to see if they are paralleled and tight on the stick, and if a loom has excessive power on the picker stick he will call the fixer to find out why. He is keeping right in behind the production and seconds of each individual weaver; he is taking an interest in the cleaning of the machinery; he is right in behind his sweepers and scrubbers, because he wants the boss to see how much better his room looks than it did before he took charge. He is on the job; he has gotton "motion", and he should know that if he would keep it up he would surely get the "Pro" to add to his "motion", which would be *"Promotion"*.

But Do You Do It Now?

But strange to say, he finally has so many things to do that he quits going up and down the alleys. He goes through the card room like he thought there



Do These Bobbins Look Familiar?

THERE is more than one mill in the country that is using bobbins as bad as these. Good yarn cannot be made on poor bobbins.

U S Card Room Bobbins are guaranteed to a definite degree of uniformity. The same careful attention is given to selection of stock, finish, and spindle, bolster, and gear fits that makes U S products the choice of the majority of mills.

Why not look over your Card Room Bobbins today? Ask yourself if you are imposing a handicap on your carders, and replace some of those old bobbins with U S better bobbins.

Write, wire, or 'phone our nearest U S service man to help you adopt standard sizes if you do not already have them.

U S BOBBIN & SHUTTLE CO.

GREENVILLE, S. C.

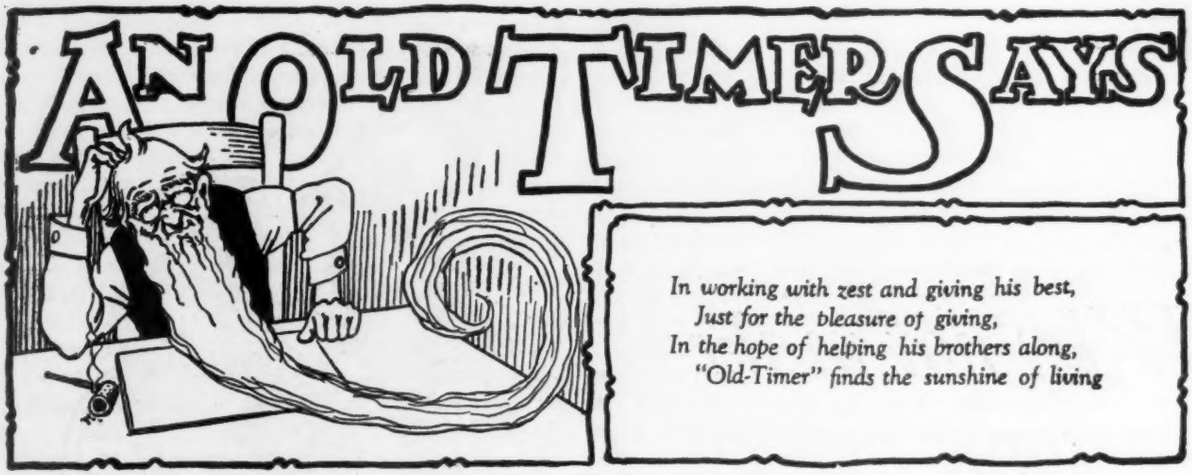
Main Office:

PROVIDENCE, R. I.

Branch Offices:

HIGH POINT, N. C. PHILADELPHIA, PA. ATLANTA, GA.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

"Two-Thirds of *Promotion* is *Motion*"

P—r—o—m—o—t—i—o—n——

Nine letters spell promotion—a very simple word—very easy to spell—very easy to pronounce—but a darned hard word for the average man, young or old, to learn the practical meaning of.

Please notice carefully that the last six letters of the word spell *motion*, and as there are nine letters in promotion, then two-thirds of promotion is *motion*.

One of the definitions Funk and Wagnall's Dictionary gives of the word "motion" is: "An impulse to action".

Have You Got It?

Most all overseers and superintendents have that "impulse to action" when they first go on the job, but in two or three years they beginto drift; they begin to lose interest; they begin to find so confounded many things to do to take up their time which is not helping to run the job.

When the average overseer or superintendent goes on the job he would not think of letting any of his men get on the job before he does; he would not think of passing by that weaver who has four or five looms standing, without doing something about it.

He would not stand for letting that loom fixer use two or three shuttles on one loom in one year, without going to that loom to see what is wrong. He would not let his grinders set up cards for months at a time without putting the gauges on some of them himself. And great guns! look at that pile of bad filling. He prided himself two years ago on not having a bobbin on the floor. And seconds—well, his seconds are still pretty good, even if they have gone up one or two per cent!

Does he realize that one per cent seconds will oftentimes amount to his salary?

Of course you have heard that age-old axiom, "A new broom sweeps clean"—well, the guy who first said those few words sure did know his apples, onions, or whatever these young fellows say these days.

Yes, it is hard to realize, I know, but the average overseer and superintendent in two or three years on the same job begins to lose that two-thirds of promotion to which I have referred in the foregoing, and as a result of losing motion, or the "impulse to action", he of course is losing his chance of the whole word—"Promotion".

You've Done It Yourself!

When the average overseer or superintendent takes a job you will see him going up and down the alleys in the spinning room looking for vibrating spindles, weight levers down, dirty rolls, slack bands, dry spindles, white cotton on floor, and all the other things which most any good overseer or superintendent knows to look for.

You will see him going down alleys in the weave room looking over cloth for double threads, misdraws, bad selvages, tight and loose tensions, and calling section men's attention to temples too high or too low or vibrating too much. A temple should be set so that the lay would give it only motion enough to make the temple roll or burr take hold of the cloth to hold the cloth at as near full width of yarn in reed as possible. To set a temple to have a stroke of one-half or more, defeats the very purpose for which the temple is put on the loom, and greatly reduces the life of the temple by wear.

You will see him stop looms with full warps to see if the fixer has set the harnesses; he will notice the pickers to see if they are paralleled and tight on the stick, and if a loom has excessive power on the picker stick he will call the fixer to find out why. He is keeping right in behind the production and seconds of each individual weaver; he is taking an interest in the cleaning of the machinery; he is right in behind his sweepers and scrubbers, because he wants the boss to see how much better his room looks than it did before he took charge. He is on the job; he has gotton "motion", and he should know that if he would keep it up he would surely get the "Pro" to add to his "motion", which would be *"Promotion"*.

But Do You Do It Now?

But strange to say, he finally has so many things to do that he quits going up and down the alleys. He goes through the card room like he thought there

Why not make some money in the TEXTILE BUSINESS?

PEDALING the old high-wheeler would not get you very far today. Neither does tying up end-breaks, starting up frames and all the other things that slow down production and cheat you on regain, when you use an old-fashioned humidifying system.

Many mills have modernized such equipment with immediate profit.

Without cost or obligation to you, our experts will investigate humidifying conditions in your mill and give you a complete written report of their findings. (The expense is ours. The findings all yours to do with as you see fit. When diagnosis is free, why continue to wonder what's the matter?)

This newly designed Amco Humidity Contro automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

It is not an expense, but a sound investment to install modern Amco humidifiers and the remarkable Amco Control. The money savings from improved air conditions return the initial cost in a short time—often in a few months.

Wrong air conditions in a mill are like disease in the human body. They undermine the whole structure. Call for an Amco "Air Doctor" today and let him tell you what's the matter. More and better regulated humidity will often change red figures to black. Let us prescribe for you now!

AMERICAN MOISTENING CO.

Humidifying Devices

Air Doctors Since 1888

EXECUTIVE OFFICES
261 West Exchange Street,
Providence, R. I.

SALES OFFICES
Boston, Mass. **Atlanta, Ga.**
Charlotte, N. C. **Greenville, S. C.**

was a fire in the opening room, and when he gets to the opening room, he is ready to go back somewhere else without having stopped as he passed that grinder setting up a card, or noticed the waste the boy was taking out from under the card. He did not even see that man with a box of cut roving going back to the waste machine, and there is a frame hand running the cone belt back to tighten the ends just after doffing (Gosh! look out spinning room)—in fact, he is *just too darn busy to run his job.*

"Wait Old Timer! How did you say that?"

Yes, I heard you, but I mean just what I say. Many are the overseers and superintendents who are "too busy to run their jobs".

Running a room or mill is not such a complicated job. In fact, you can solve many of your complicated problems by merely applying to the department of "HOW OTHER MEN MANAGE" in COTTON, but it is those simple little things of looking after details, some of which are outlined in this article, that the average overseer and superintendent soon drift away from, and the job begins to run down.

Do you just read COTTON for recreation, or do you read it to improve yourself as an overseer or superintendent?

Do you read "Old Timer" just because you can get a little diversion from the regular reading?

Do you realize that most of the points brought out in COTTON are the result of years of research and study and experience?

I'll make it a little stronger. In the past seven years, the "Old Timer" pages alone, have covered every calculation and every likely item of management in the average print cloth or sheeting mill as they are being successfully operated today. The average section man or second hand of average intelligence could take the issues of COTTON for the past seven years, and if he would follow those articles literally, and do the things laid out and fully explained, he would develop into an overseer or superintendent who would get the "Pro" to put to his "motion". He would find that he would not have to *hunt for a job*, but the *job would hunt for him.*

This statement is not made "haphazard", nor is it made without deliberate and mature thought and with the full confidence that it can be proven by actual test. It has been. Just take the last twenty-four issues of COTTON and say you are going to study one issue each week and make an honest effort to carry every point brought out which has any bearing on your own job, and give it a fair trial. Then, by gum! if your job does not begin to improve; if your production does not go up, and if you do not feel that you are a better man; a better overseer or superintendent—well, just send in your name, and I'll see that at least you get that dollar back which you paid for COTTON.

Meantime, don't forget that two-thirds of *"Promotion" is "motion".*

Using pH Control in the Dyehouse.

(*Continued from page* 499.)

A dyer will find that the pH after boiling off will be lower than it was at the start, showing that some of the alkali has been used up. In fact, some dyers knowing this, add free alkali to the boil-off in order to make up for this drop in pH. Some of the trade boil-off preparations contain a reservoir of alkali, from which to draw as the gum absorbs the alkali from the soap, and in that way keeps the pH constant.

There is a fruitful field of investigation for the dyer who uses pH to watch the boil-off. There can be nothing but benefit to come from an attempt on the part of the dyer to check the pH of the boil-off baths at the start, insuring that the standard is maintained and later a test of the finished boil-off bath to see whether the change in the pH as the result of the action on the silk gum is the same as usual.

The well boiled off goods are then washed and are ready for the dyeing operation.

Right here is where we would do well to buy new batteries for the pH machine, or send out for another bottle of indicator, since the success of dyeing depends on the care with which the dyebath is made up.

Here is where pH control can do so much to benefit the dyer. A sulphonated oil is a very versatile product. Apart from its valuable wetting out properties, it plays the part of a buffer solution.

Buffer solutions, by that high sounding name, are something new to dyehouse work, yet no dyer nor dyehouse has ever been able to get along without them. The dyer may not have known that they were in his dyehouse, yet we all use them every day; have done so for years past and shall continue to use them, even if we dislike the highbrow name.

Buffer solutions are pressure regulators, similar in action to those used on steam lines to reduce the high pressure of the boiler to the low pressure of the line. In that sense, since pH is electrical pressure, buffer solutions are pressure regulators.

A good example of a pressure regulator is a solution of sodium acetate.

Sulphuric acid is equivalent so far as silk is concerned, to high pressure electricity. Now when we add this acid to a solution of sodium acetate, we do not get the pressure or pH due to sulphuric acid, but instead, get the pressure of pH due to acetic acid, which is low pressure, and this continues on the addition of sulphuric acid, until the pressure regulator is all used up, and then by adding still more sulphuric acid, we get the high pressure due to the sulphuric acid.

Naturally, the extent of the pressure regulating depends on the amount of sodium acetate present, but until that is all used up, we never get the pH due to the sulphuric acid, but only that due to the acetic acid. It will be seen then that the pH of the dyebath will depend on the amount of pressure regulator present, as well as on its quality.

Silk and cotton hosiery dyers, using acetic acid or any acid at all in their dyebath, which acid is probably necessary for the maximum fastness, will obtain variations in shade if the pH of the dyebath is not the same from batch to batch.

Sulphonated oils used in such dyebaths are pres-

The Use of *Quality Loom Equipment* Means a Resultant *Quality Loom Product*

Every product that we manufacture has a solid background of Thought, Research, and Experimentation behind it.

Would you like to have one of our experienced weavers call and assist your overseer in cutting his costs—producing a better fabric—and overcoming certain troubles? Their services are free to you—they know the harness game. *Write*

Main Office and Plant
2100 W. Allegheny Avenue, Philadelphia, Pa.

Southern Office and Plant
621 E. McBee Ave., Greenville, S. C.

Steel Heddle Mfg. Co.

New England Office
44 Franklin St., Providence, R. I.

Foreign Offices
Huddersfield, England. Shanghai, China.

Have you seen this New Book?
A FREE Copy is waiting for you. Write for it.
HAND BOOK ON LOOM REEDS
Price $2.00
by George Rice
Retired Mill Superintendent

sure regulators. They convert the pressure of the acetic acid into the much lower pressure of the sulphoricino oleic, formed by the action of the acetic acid on the sulphonated oil, which does the dyeing.

The quality of the oil, so far as pressure regulating qualities are concerned, is of vital importance to the dyer.

Oils, so innocently clear and bright in the sample bottle, may vary widely in their pH regulating properties simply because of slight changes made in their manufacture. For example, an oil that has been neutralized with caustic soda, will be different in its pressure regulating properties than an oil neutralized with ammonia. The extent of the neutralization is also important. Probably most oil concerns test their products before shipping as regards purity, strength, solubility and stability to salt and acid. Maybe they will later have to add one more test, which is to ship an oil of standard pH and buffering properties.

When the dyer has made up his dyebath, he should, before adding the color, test the pH and determine that it is the same as previous batches. Next he will put in his color. Dyestuffs themselves may be powerful buffering agents. It will be remembered also, that several direct dyes are standardized with soda ash or else with sodium phosphate. These alkalies are put in with the dye for two reasons, one is to assist the solubility of the dye, and the other is a praiseworthy attempt to control the pH of the resulting dyebath. Dyestuffs may also be delivered to the dyer containing actual buffering agents, such as sulphite cellulose pitch and from what we know of the action of these pressure regulators, we will be able to see that the use of varying amounts of dyes containing them will have a distinct effect on the pH and dyeing properties of the dyebath containing them. Accordingly, a dyer who is looking for sources of possible variations will do well to closely examine the dye that he is using and any which are offered to him.

It would make things a good deal simpler for all of us engaged in dyeing and who later on expect to use pH control in our daily work, for the manufacturers of dyestuffs to anticipate the inevitable demand for dyestuffs, standardized not only to shade, but also in respect to pH and buffering.

Most probably the dyer in testing his dyebath will find it easier to use the electrical apparatus rather than the colorimetric, but it does not seem impossible for a keen-eyed dyer to work out for himself methods using colored indicators even in the presence of other dyes. If the present indicators do not so operate, there is nothing to prevent him from working out his own indicators, especially so when we bear in mind that several well known dyestuffs are already in use and it is highly probable that when dyers really get down to the job that they will find many more indicators for use in special cases.

There has been outlined in the foregoing, a general scheme for the application of pH control to the dyeing of silk and cotton hosiery. It will be seen that in place of only using pH tests in one place in the dyeing operation that the various processes involved are full of good chances to use pH with benefit to the world at large and the dyer in particular. In fact, a dyer who wished to safeguard his dyeings in every possible way could do so with pH control and could regulate the preliminary operations, that before starting the actual dyeing he would really know that the goods were in condition to be dyed. Then by using oils and chemicals of standard pH and buffering qualities as well as dyestuffs also closely regulated he would have little to worry about, except such trifles as different kinds of silk, mixed yarn, oil in the water, rust from the pipes and such mistakes as humanity can possibly make.

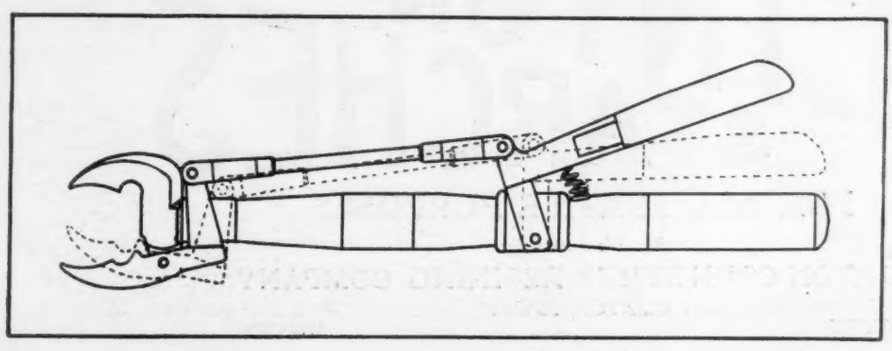
Textile School Emphasizes Use of Microscope.

The use of the microscope for the identification of textile fibers in the various types of rayon is being especially stressed in the microscopic course taught in the Textile Chemistry and Dyeing Department of the North Carolina State College Textile School at Raleigh, N. C.

Textile students take this course in their senior year. The microscopes are used to identify textile fibers and the various types of rayon, also for microscopic analyses of starches, sizes and pastes ued in the dyeing and finishing of textiles. An interesting and serviceable attachment which is used is the students' ocular. This replaces the regular eye piece, and enables the teacher to see the fibers being examined by the student, and point out the characteristics which he desires the student to see. Another attachment which is used in the class work is the Abbe Camera Lucida. This is a reflector for reflecting whatever is being examined, so that the students can readily make sketches of the objects under examination.

A New Safety Fuse Puller

Mill master mechanics and chief electricians will be interested in the C. A. Pendleton safety fuse puller, invented by C. A. Pendleton, Master Mechanic of the Cramerton Mills, Cramerton, N. C. A drawing of this fuse puller is shown in the accompanying illustration. The inventor states that they are made of fiber and are strong and safe. They are made in three sizes, to fit any fuse.



No. 1 will handle fuses from 3 to 30 amperes;

No. 2 handles 0 to 200 amperes, 250 volts, and 0 to 100 amperes, 600 volts;

No. 3 has adjustable jaws and handles 100 to 600 amperes, 250 volts, and 60 to 400 amperes, 600 volts.

Business Sagacity

Good common sense is just another mark of *understanding*. It is not rare in business. Only is it *un*common when it is so good that it is prophetic. But then it drops its maiden name and business knows it as Sagacity. Its ready, far-reaching, accurate inference from observed facts and figures, is a dependable power. It visions the human motives in conduct, and foresees results. With Integrity it is the most valuable of all human qualities in business.

Once, Sagacity considered itself a special gift of Providence — an inheritance from the family "Sage" tree, and only those who dropped therefrom had it.

But *Modern Accountancy* has changed even that. Business Sagacity today is just another mark of *understanding business*. And *understanding business* is, to a large extent, the mark of Modern Accountancy.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

ADDRESS NEAREST OFFICE

NEW YORK	WASHINGTON	DETROIT	CLEVELAND	CINCINNATI	CHICAGO	DALLAS	ST. LOUIS
PHILADELPHIA	BUFFALO	GRAND RAPIDS	AKRON	DAYTON	MILWAUKEE	FORT WORTH	KANSAS CITY
BOSTON	ROCHESTER	KALAMAZOO	CANTON	LOUISVILLE	MINNEAPOLIS	HOUSTON	OMAHA
PROVIDENCE	PITTSBURGH	ATLANTA	COLUMBUS	HUNTINGTON	ST. PAUL	SAN ANTONIO	MEMPHIS
BALTIMORE	WHEELING	MIAMI	YOUNGSTOWN	DAVENPORT	NEW ORLEANS	WACO	SAN FRANCISCO
RICHMOND	ERIE	TAMPA	TOLEDO	INDIANAPOLIS	JACKSON	DENVER	LOS ANGELES
WINSTON-SALEM				FORT WAYNE			SEATTLE

STODGHILL & COMPANY

530-532-534 Marietta St. Atlanta, Ga.

"The Size That Satisfies"

Sizing Compound "V"

TALLOW
GLYCERINE
GUMS
DEXTRINES
PRESERVATIVE
WATER

Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

Sizing gums and weighting gums.

* * *

Our prices are right for the quality of products.

Emulso Tallow

TALLOW
WATER

The perfectly emulsified product. Contains no Gums, Acids or Alkali.

CLINTON STARCHES

FOR ALL TEXTILE PURPOSES

Manufactured by

CLINTON CORN SYRUP REFINING COMPANY

CLINTON, IOWA.

QUALITY SERVICE

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

"Some Mill Men I've Called On".

BY A TRAVELING SALESMAN.*

YOU recall the letter published last August in which a mill superintendent classified the salesmen who call upon him. He didn't mince any words in discussing the different types of Knights of the Grip who take up his time—and, incidentally, render him a service.

The letter below was written by a well-known textile salesman who has called upon mills in all parts of the country. Like the mill man to whom he is writing, he talks very frankly about the men he calls upon. Believing that all of you will enjoy what he has to say, and in a spirit of fairness, we devote this space to his observations and advice to millmen on How to Deal with Traveling Men, by One of Them, or words to that effect.—The Editor.

EDITOR COTTON:

I read with interest the article on "Textile Salesmen I Have Met", in the August issue of COTTON. This man's comments about salesmen deserved a reply from some salesman, and I have intended commenting on it ever since reading it, but have lacked time. Perhaps if I could have had a portable typewriter handy while waiting for superintendents and agents to finish the morning paper, this letter could have been in your hands long since.

For on this very point, your contributor strikes one of the greatest, and most useless wastes in salesmanship. At least ninety per cent of the mill men I call on are courteous, considerate gentlemen, who not only wish to conserve their own time, but are willing to help conserve mine, too, and who have their work so arranged that they can do this. From years of experience in calling on thousands of men all over this country and Canada, I firmly believe that any man who is seriously annoyed by salesmen is a poor manager, and does not know how to handle his job.

Seeing salesmen is just as much a part of a superintendent's job as is any other necessary detail in running his mill. A mill requires a vast number of supplies that can easily be bought by a purchasing agent, if the mill has one. But comparatively few mills have purchasing agents who are anything more than order clerks who take care of the papers necessary in connection with placing an order, but who have little, if any, responsibility as to who gets the order, or why. Also, even where there is a purchasing department with full authority to buy supplies at the discretion of the purchasing agent, there will be many times when a salesman will call with some highly technical proposition that will mean exactly nothing to the head of the purchasing department, but which may easily be of great interest to the superintendent or agent. Too frequently, the salesman fails to get an audience with anyone who will comprehend his story, simply because the purchasing agent feels that because he cannot understand the proposition, it must have no value.

Tuesday, 10 A. M.

For many years, I made it a fixed rule never to see a purchasing agent. If the technical head of the mill was not to be seen, I would go away, and try my luck on the next trip. This was not on account of any inherent dislike of purchasing agents. I know a great many of them, and they are generally very pleasant chaps, after you get acquainted with them. My reason was because the purchasing agent in almost every case could not possibly understand what I was talking about, and after going through the customary gestures of telling me they were not in the market for any of that particular commodity, he would say that they would be glad to keep my name on file and let me know if anything turned up.

Of course, nothing would ever turn up, as the matter I wished to discuss was not a routine affair, but a highly technical and specialized piece of business, which would never turn up by itself, but which I was anxious to turn up for the mutual benefit of the mill and myself. So, a purchasing agent is not going to relieve a superintendent of all responsibility of seeing the traveling men.

As your contributor remarks, there are a number of mills that frankly state that they do not wish any salesmen to call, and will not talk to them. I know most of these places, and am happy to say that quite a number of them have been junked within the past two years, and there are several others that will go to the boneyard soon.

*Whose identity may be revealed if you inquire of the Editor about it.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

They should depart unmourned by any one. When any man, or any organization, becomes so complacent, so conceited, so fatuous, that he fondly believes that the world has nothing to teach him, he is on the toboggan, and the skids are greased. Your contributor says that he admires the spunk of concerns that shut the door to salesmen, and envies them their quiet, undisturbed days. Why anyone should admire conceit, and envy stagnation, is a little bit difficult to take in, but our friend redeems himself by adding that he does not practice these faults himself.

It costs a lot of money to keep a salesman on the road, and you may be sure that when any salesman continues to call on you for any considerable length of time, that his goods have some merit. Somebody is buying them, or he could not keep open his shop. Since somebody buys what this man sells, it is entirely possible that he has something that would interest every mill. The only way to find out is to see him, and hear his story.

If a superintendent knows how to run his job, he need waste almost no time at all on salesmen. Practically all the men who call at any one mill are repeaters; men who return at regular intervals, and it takes very little time to get them classified. The chances are ten to one that when a salesman calls, the superintendent knows who he is and what he wants to talk about. In the case of random salesmen, it takes a very short time to find out what they want, and classify them too, and this applies to new men on the road. Assuming that during the day, a superintendent has thirty salesmen call. This is a very large number, and it will usually be impossible to see all of them. But there is no need to waste anybody's time if the superintendent uses his head, and a little tact. Three of these men may be from regular supply houses, and the superintendent will certainly know them, and can either tell them at once that there is nothing doing that day, or can refer them to the proper overseer, or to the supply room. It is not even necessary to stop shuffling his papers to attend to this. Three more of the callers may sell belting. Two may handle sizing. Two will be paint men. Four cotton salesmen. One handles coal. Two sell oil. And so on. In each case, the superintendent, if he really knows his job, can tell in an instant if he wants to see the caller, and if too busy to see many visitors, he can dispose of almost the whole gang in a few seconds to each man.

Let me add here that no salesman worthy of the name will object to a busy man's excusing himself, provided always, that he is sure that the said busy man knows exactly what his mission is, and is sure that there is no need for an interview. When I call at a mill, and I am well acquainted with the management, I never take it amiss if the person I called to see is too busy to see me. I know that this man knows my business, and therefore knows pretty well whether he wants to see me. But when I go to a plant where I am not known, and where the superintendent cannot possibly know what I want to talk about, there is hardly any possible excuse for that man not seeing me and finding out what I have to sell. Even if his duty to his employers did not bind him to the responsibility of keeping in touch with possible sources of supply for things his mill might need, the dictates of ordinary decency and common civility should prompt a man to see a person who has very likely gone to considerable trouble and expense to make the call. It will only take a minute or two to find out what the caller is representing, and perhaps five minutes to get a fairly comprehensive idea of the proposition. After that, the superintendent is under no obligation ever to see this caller again, unless the caller announces a new proposition he wants to present.

It is a question of sound office management to handle salesmen to the satisfaction of all concerned. If any man is unduly troubled with salesmen, it is his own fault.

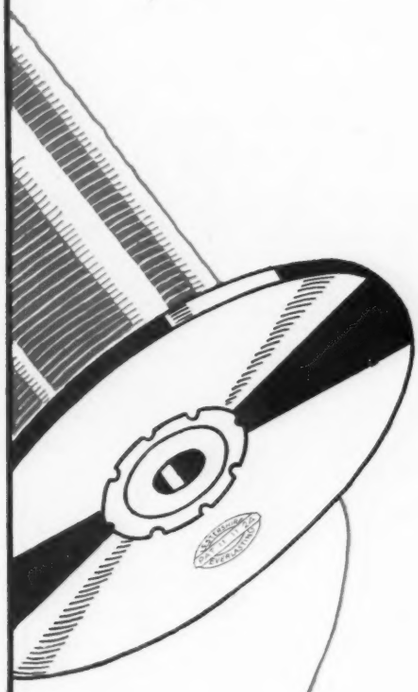
Your contributor divides salesmen into three classes, and it is a fairly good division in one way, in that it practically separates them into the natural classification of good, fair, and poor. But there are a lot of poor salesmen in the division that he rates highest; the representatives of established supply and machinery houses. Likewise, some of the best salesmen in the business are in the specialty game, which your contributor seems to regard as something lower than zero. Aside from the obvious fact that salesmen are good, fair, or poor, it is impossible to classify them.

Your contributor welcomes the representative of an old, established house, but shuns the one from a concern he never heard of. How do houses get to be old, established concerns? They have to start sometime. And some of the old, established concerns are dying off of the dry rot, simply because they considered themselves too well established not to endure forever.

The most valuable type of salesman, from the standpoint of a progressive superintendent, is that which your correspondent rates the lowest—the representative of a new house, and incidentally, the bearer of a new idea. Everybody knows where looms, and pickers, and cards, and spinning frames and a hundred other standard machines and supplies can be had; but when some bird comes along with an idea or a gadget that will get more or better work, or both, out of any of these machines, then you have got something worth while. And it is very seldom that the highly respected, old established concern brings out the radical improvement. They always fall in line after the thing is a proven success, but this type of firm does little pioneering.

It has not been long since the automatic loom, the mechanical knotter, the humidifier, specialized opening equipment, and a number of other vital improvements were despised and ridiculed innovations, unworthy of the consideration of conservative men, who worshipped at the shrine of established practice. Every one of these great improvements had to be put over against the inertia of ultra conservatism. These things are in the province of the specialty salesman, the man

They help put Fabrics in the BETTER CLASS



EACH process in producing textile fabrics is a link in a chain. Even one link shows up in the finished goods as a loss in quality.

Spooling is one of these links, and is much more important than is generally conceded. Good spooling naturally is dependent upon good spools, so we recommend Lestershire Fibre Head Spools.

Every surface of a Lestershire Spool is machined. That means that yarn winds on evenly. That it comes off the Lestershire Spool without over-tension which would snap the yarn or strain it into eventual "thin spots."

Better your production through the uniformity, accuracy of construction, and ability to run true of Lestershire Spools.

LESTERSHIRE
TRADE FIBRE SPOOLS MARK
SPOOL & MFG. CO.

146 Baldwin St., Johnson City, New York
Southern Office:
519 Johnston Building, Charlotte, N. C.

BETTER PRODUCTION CONTROL

when Toledo Scales check for proper weight

A HITCH in the weighing causes lost time and money all along the line. Inaccuracy in the mill scale ruins the quality and affects the cost of a product before it has even seen the light of day.

Scales that will bear the brunt of hard wear—scales that can be depended upon to weigh 100% correctly. That is what the textile plant needs, and that is what scores of mills are getting today from Toledo Scales. Equipping your plants with Toledo Scales will pay for itself many times over in economy of production and dependable quality of the finished product.

* * *

Write to us about your weighing requirements, whether for raw materials, processing, dyehouse, warehouse or shipping room. We shall be glad to put our mill-plan experience at your service.

MODEL 1801-F — *Portable scale furnished in a variety of capacities. A wonderful scale for general use almost anywhere in your plant. With or without tare and extra capacity beams. Other models to meet every weighing requirement*

PICTURE AT LEFT *shows a battery of Model 851 scales in mill finishing room where skeins of rayon are being packed to predetermined weights. Another example of Toledo's practical service to the Textile industry*

Toledo Scales

NO SPRINGS · HONEST WEIGHT

Mail Coupon Today!

C-2

TOLEDO SCALE CO.
Toledo, Ohio

Please have the Toledo man call in connection with our weighing problems. This does not obligate us in any way whatever.

Name.....

Address.....

City.....

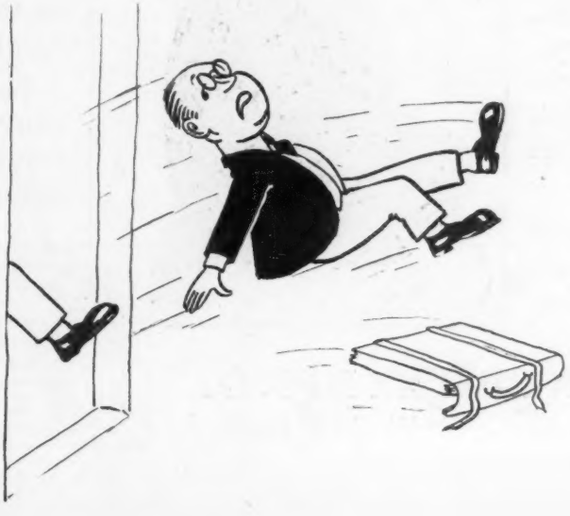
who markets a new idea. Now, a great many persons hate a new idea. They long for the quiet of peaceful, undisturbed days, and shun the turmoil of new, fresh ideas, that may junk old methods, long cherished as traditional.

I find more of this complacency with existing conditions in the textile industry than in any business with which I come in contact. But there are lots of alert-minded men in the textile industry, and you usually find them in the flourishing mills. With few exceptions, the man who does not care what goes on outside, and is hostile to salesmen who may be guilty of suggesting that there was a better way to do something than the way he did it, is running a business that is steered straight for the scrap pile.

I call on mill men all over the country, and have, after many years, weeded out the calling list from experience. I have classified the mills, just as every mill manager should classify the salesmen. I know which mills are run by alert-minded men who can think, and who are not afraid to try a new idea. I also know which mills are run by men that it is useless to see, and where I would only waste my time and theirs.

I never try to sell anything to a mill unless I think the mill will be benefited, and will want to buy more. I never try to sell anything to anybody until its value has been well proved. Yet, I cannot find fault with a customer if he does not buy everything I try to sell him. Nor should I waste my time and his when I know I can't sell him anything. But there will be numberless cases where I will call on a man several times when I know almost to a certainty that I cannot sell him anything on that trip, but have every reason to expect some business later. The customer knows when he is ready to talk business with me, and there will be no hard feelings if he refuses to see me on every call except the one that lands the order.

A great many mill men are utterly callous and inconsiderate of other people's feelings, just as a great many bank presidents, and hod carriers, and salesmen have this same failing. These men will uselessly keep a salesman waiting for hours, just to show their importance. I scratch them off my calling list at once. They are not worth seeing. But unfortunately, there are dozens of well meaning superintendents who waste their own time, and hundreds of thousands of dollars worth of salesmen's time, simply because they do not know how to handle that phase of their day's work that includes seeing salesmen.



Your contributor winds up his diatribe by commenting on the two patient salesmen waiting outside for him to finish writing his memoir. You see, he not only kept them waiting while he was finishing something entirely foreign to what his employer pays him to do, but brags about it in print. Yet it is very likely that this gentleman is a kindly soul, and that I call on him regularly, and like him, and sell him some of my goods. And he has no doubt kept me waiting when I was in a hurry, and he was doing something that could just as well have been done some other time. Both of the poor devils in the outer offices, waiting for the finishing touches to be applied to your contributors' letter to the Editor, may have been frantically looking at their watches every few seconds, realizing that they were missing the last train for sixteen hours, and never realizing the sacrifice they were making to literature!

It strikes me that your contributor is probably a regular guy after all, as he qualifies all his hard-boiled stuff to such an extent that he appears to be a man who just wants to get something off his chest, and does it. But he has given me an opening to point out the fact that the salesman fills a very important place in the scheme of mill operation, and is entitled to a great deal more consideration than many of the trivial, routine matters that are disposed of while the traveling man waits in the corridor. The traveling salesman can't be eliminated from the picture. He is going to call, and keep on calling, and a little consideration, and sympathy, coupled with discretion and common sense on the part of the superintendent will greatly smooth the way of the traveling man, and minimize the waste of his time and that of the superintendent. And never forget that every dime of the traveling expenses of all the thousands of traveling men is paid for by the mills. The fellows that you dislike, and will not buy from, have got friends somewhere that are paying for the time you waste. The friends that you welcome, are often poison to somebody else, and you pay for all the time he wastes for them. You may fool yourself into thinking that when you waste a caller's time, it is no loss to you, but it is. It all goes into the general expense fund that has to be paid by somebody.

The salesman is one of the best friends the mill man has, if he will make full use of him. A good salesman is a specialist in his line, and usually knows a great deal more about it than the mill man will ever know. A tremendous amount of information can be obtained from salesmen, and many mill men frankly admit that they have learned as much from these specialists as they ever did from experience.

A negligible quantity of irresponsible salesmen, representing worthless articles, are always abroad, but they are few, and do not last long. The bulk of the boys are hard-working chaps who have something good to sell, though it is not always something that any

Time-
tester of man and of belt

THEY were room-mates at college. Fraternity brothers—honor students—and a shifty pair of slashing halfbacks. When graduation came, the years beyond glowed rich in prospect. Both men had been schooled and trained alike. Their opportunities had been the same. They had an even start at scratch.

Take any two men—or any two belts—apparently of equal calibre. Only the years ahead will show. One slips, or breaks under the strain. A lack of stamina, perhaps, or a flaw in the fibre. These are weaknesses that no expert other than Time can detect.

Time is the great tester of specifications. Time only bows before inherent character—such character as has always been built into Condor Belt.

You can safely buy Condor Belt on name alone. Like all high grade belts, it conforms to rigid specifications. Weights of duck and friction tests in belts may be alike, but even these cannot foretell their span of life.

In Condor Belt, the component parts are built for aging. They are steeled against Time. The factors are constant. In your own shop you will find the proof. Match Condor—belt for belt—and let the outcome form your opinion.

Put a Condor Belt on your hardest drive. Let the result be the belt-buying guide for your entire plant.

THE MANHATTAN RUBBER MFG. CO.
Executive Offices and Factories: PASSAIC, NEW JERSEY
Branches in the Principal Cities

Condor BELT

one particular mill will want. You should use them intelligently. Don't kid them along with false hopes if you know you will not buy from them. Never give a man an order because you feel sorry for him, or want to help him out. He does not know your motive, and naturally thinks you like his goods, and can't understand why he does not get repeat business. If men selling things you do not want, and know you do not want, keep swarming back to see you, it must be that you have given them some encouragement; perhaps unconsciously.

I have a large territory to cover, and I am a very busy man; far busier than most of the men I call on, and I often think of a remark one of these men once made. He ran a very big mill, but always had time to see anybody. I commented to him one day on the fact that he was always accessible, while most of his neighbors were perennially busy. He replied, "It doesn't take much to keep some people busy. They can spend a lot of time walking around in their own way."

The longer I am on the road, the stronger is my conviction that this criticism is just. The biggest men in the industry are usually accessible, yet they have a way of getting to the point of a matter promptly, and settling an interview in the least time, and with the least waste of time. They are easy to do business with. It is the little shrimp, puffed up with his own importance, running around in his own way, who is always busy, and who keeps you waiting while he attends to some little detail that can easily wait until you are gone.

By constantly weeding out the deadwood among prospective customers, I have built up a list of live, progressive prospects to call on. The mossbacks, the dumbbells, and all the other dead ones have been cut out. By a similar process of elimination, any superintendent can build up a dandy list of traveling men that it will be a pleasure to see, and will get rid of the ones that he has weighed and found wanting. The thing works both ways, you see. I am just as particular whom I call on, as you could be about who calls on you.

A SALESMAN.

New Frame by Steel Heddle.

The Steel Heddle Manufacturing Co., with plants in Philadelphia and Greenville, S. C., have announced a new development in frame construction for loom harness. This is a combination frame with a double brace support on each end, with an inch strap of hard lumber between the braces to permit a proportionate support for the harness shaft.

The company points out that a perfect guidance of the harness shaft while in operation is assured through the combination end, meaning that the possibility of a catching or interfering with the next frame is eliminated. The lumber used can be as thin as 5-16-inch to 3-8-inch stock, to permit a large number of frames when this is necessary. The company points out further that the braces create an absolute rigidness of the frame, and that the new design gives a perfect alignment of the heddle.

In addition to this, the company has designed a center brace which is easily removable. This brace ties the center of the frame together, to assure that all heddles will have sufficient play at all times, regardless of the length of the frame.

Another Lay-Out for 70s Combed Yarn.

EDITOR COTTON:

I notice in the February issue of COTTON that a reader gives the lay-out he uses for making 70s combed yarn. We make this number, and I give below the layout which I find very satisfactory. This may not be just what some other mills would like to use, as local conditions may have some influence that may make it necessary to vary from this, but this lay-out is very satisfactory for my work.

LAY-OUT FOR MAKING 70s COMBED YARN.

Machine	Draft	Weight of Product
Picker	---	12-ounce
Card	120	40-grain
Sliver Lap	2	475-grain
Ribbon Lap	5.5	525-grain
Comber	70	42-grain
First Drawing	5.5	44-grain
Second Drawing	5.5	46-grain
Slubber	4.5	.83-hank roving
Intermediate	6	2.50-hank roving
Roving Frame	8	10.00-hank roving
Spinning	14	70s/1 yarn

You will note that I use only three processes of roving. I would be glad to see other organizations for this yarn, to compare them with my own, if the readers will send them in.

CONTRIBUTOR NO. 4105.

Where are the Good Section Men?

EDITOR COTTON:

Why is it so hard, these days, to find good section men? The writer had that question put to him not so long ago, and for a while, it had him stumped. He finally came to the conclusion, however, that most of the good section men had become second hands or overseers, remembering the case of a young speeder tender in the card room.

This young operative always ran more hanks and made better work than anybody else in the room. At this mill, the overseer had to turn in, at the end of the week to the superintendent, his bad work report, with the names of the ones who made it. In looking over these reports, he noticed that this young fellow always had less bad work than the others. Finally, the section man around the speeders put in his notice to quit, and the superintendent asked the overseer to give this young fellow on speeders a trial on it, which he agreed to do, and he ran that section just like he did the speeders—right up to the minute.

Later on 48 new cards were added, making it necessary to have another card grinder. The overseer decided that as the young man had done so well on the speeder section he would teach him how to grind cards, so he took him to the machinery erector and asked him to show him all that he could, which he agreed to do, and with help he received from the other card grinders he soon developed into a good card grinder.

About a year later, more machinery was added. It was decided that the job was big enough now to put

IN the Dodge-Timken Data Book you will find the answer to your bearing problem. For every power transmission, material handling or machine application there is a bearing designed by engineers whose knowledge of service conditions assure continuous, waste defying performance.

Dodge-Timken bearings combine the advantages of the rugged Dodge mounting with Timken tapered construction, positively aligned rolls and electric furnace steel. The power savings, lubrication economy and long service which distinguish Dodge-Timken bearings permit users to select with greatest assurance of full promised operation.

REG. U.S. PAT. OFF.

DODGE MISHAWAKA TIMKEN

Please send me the Dodge-Timken Engineer's Data Book

*Name*_____

*Position*_____

*Firm*_____

*Address*_____

DODGE MANUFACTURING CORPORATION, Mishawaka, Ind. *Factories at* MISHAWAKA, Ind., *and* ONEIDA, N.Y.

There's a Dodge-Timken for Every Industrial Need

on a second hand. The young fellow asked the overseer to give him a shot at it, but the overseer informed him that he had a man coming from another mill to take the job. He took this a little hard, but kept his mouth shut and kept pegging away. Finally this superintendent left and went to another job, and the new second hand came on, who proved to be the overseer's brother. It finally leaked out that this chap had never worked a day in the card room. This news came to the ears of the young fellow who should have had the job, but he still kept his mouth shut, but he wrote to his former superintendent, asking for just any kind of a job in the card room, and he got one—the overseer's job. But after taking this job he found that his education was not sufficient to enable him to hold it. He went to the superintendent and told him about it, but the superintendent, knowing that he was a hustler, and easy to teach, told him to forget it, that he would hold him up and for him to keep everything hustling and he would make his calculations for him.

This did not suit the young overseer, for he was afraid the superintendent might leave there and then he would lose out. He got in touch with a good correspondence school, and by studying hard at night, and in his spare time, he soon graduated as a master carder and spinner.

That is why it is hard to find good section men. They go up, while the sorry ones stay in the same place, or go down.

This is written for the young men who are running sections today, to show them that by hustling, and self-improvement, they can step up. The writer does not want to be misunderstood, for he knows that there are still good men running sections, but the only ones that are handicapped, are the older ones. There is no limit to the possibilities ahead for the young ones. They have the moon to shoot at, and the sky is the limit.

J. T. D. (MISS.)

MS. 4512.

A Question on Oiling Rayon.

EDITOR COTTON:

I would like to see some discussion, in the "HOW OTHER MEN MANAGE" department, concerning the advisability of oiling rayon after dyeing in the skein preparatory to winding, and what oil should be used, animal or vegetable. We have had difficulties, owing to a certain "stickiness", and on using pure neatsfoot oil sparingly they have been overcome to a degree. I should be glad to know the experiences of others who have had this same trouble.

CONTRIBUTOR NO. 4078.

J. E. Lock & Son Secure Quarters.

J. E. Lock and Son, a new firm that will manufacture shuttles and bobbins, has leased space in the Tompkins Building, Charlotte, N. C., and expect to begin operations in a short time. For the first few months they will specialize in repairing spools and twister bobbins, using a device patented by Jack Lock. Later they will begin manufacturing their own lines. J. E. Lock, senior member of the firm and his son, Jack Lock, for some years have been connected with the U. S. Bobbin & Shuttle Co.

LIKE the strong men you see at the circus Hartzell-Charavay airplane type propeller fans develop amazing power. They move infinitely more air under pressure than ordinary fans and do it on far less power.

At the Atlantic Steel Co., Atlanta, one 1 hp. Charavay moved nearly twice as much air as a 5 h.p. flat blade.

At the Bourne-Fuller Steel plant in Cleveland two 3 h.p. Charavay's displaced four 5 h.p. competitive units.

Ten 16" ordinary exhaust fans with ¼ h.p. motors failed to ventilate Webster-Hall, Pittsburgh, and ten Charavay fans with 1/20 h.p. motors succeeded.

Twelve 5 ft. Charavay's on a cooling tower at Fulton Bag & Cotton Mills, Atlanta, now do the work that formerly required four 14 ft. units and save about 60% on power—$9,000.00 annually.

Installation in factory departments, in laboratories, paper mills, packing plants, textile mills and scores of other industries are showing results equally remarkable.

Have us submit data on various installations right in your own industry.

THE HARTZELL PROPELLER CO.

Division of Hartzell Industries, Inc.

318 Craft St., Piqua, Ohio

Distributors

Belanger Fan & Blower Co., 1343 Sherman St., Detroit, Mich.

Cross Ventilation Co., 608 S. Dearborn St., Chicago, Ill.

G. S. Faries, 21 Transportation Bldg., Philadelphia, Pa.

W. W. Johnston 333 Hadley Road, Dayton, Ohio.

The Wm. P. Little Co., 1536 Main St., Stratford, Conn.

Carroll B. McGaughey, 111 Marietta St., Atlanta, Ga.

Missouri Ventilating Eqpt. Co., 3138 Olive St., St. Louis Mo.

Pittsburgh Elec. & Mach. Works, 1 Barker Place Pittsburgh, Pa.

P. H. Rogers, 505 Bell Block, Cincinnati, Ohio.

Simpson & Springer, 354 Hobart St., Oakland, Calif.

Stren Fan & Blower Co., 325 Ellicott Square, Buffalo, N. Y.

Texas Fan & Blower Co., P. O. Box 1623. Fort Worth, Texas.

The F. M. Webber Co., 2148 Graybar Bldg., New York, N. Y.

J. W. Thompson, 505 Franklin St., Peoria, Ill.

Northwestern Fan & Blower Co. 447 Virginia St., Milwaukee, Wisc.

M. P. Ziegler & Co., 1690 N. Limestone St., Springfield, Ohio.

A chemical service for textile mills

An important link in Federal Chemical Service is our geographical location. Our plant at Anniston, Ala., and our general Offices at Birmingham are in the heart of Southern textile mill operations.

The Federal Plant is served by both the Louisville and Nashville, and the Southern Railroads, which assures prompt delivery and favorable freight rates to textile mill centers. Our research textile men operating out of Birmingham are within a night's ride of almost any textile mill in the South.

They can reach you quickly. And when they arrive, your problem is in the hands of textile chemists who have had years of experience in mill, dyehouse and bleachery operation—on all types of textile fibres and fabrics.

We manufacture a full line of textile chemicals. This company was organized in 1917 and today is the largest manufacturer of its major products in the United States. Inquire about our reputation and financial responsibility. It is a record we are proud of, because we have made it largely through rendering service.

"ASK FEDERAL"

SWANN S PRODUCTS

FEDERAL PRODUCTS

Softeners.
Sizing Materials.
Finishing Materials.
Raw and Sulphonated Tallows.
Penetrants.
Stripping Agents.
Dye Assistants.
Degumming Agents.
Weighting Materials.
Fulling and Scouring Concentrates.
Kier Assistants.
Detergents.
Trisodium Phosphate.
Lubricants for Cotton, Wool, Silk, Rayon.
Sulphonated Oils.
Soluble Oils.
Stainless Oils.
Olive Oils.
Wool Oils.

Also a complete line of heavy and special chemicals, animal and vegetable oils and greases for the textile, tanning and paper trades.

FEDERAL
PHOSPHORUS COMPANY

BIRMINGHAM — WORKS — ANNISTON, ALA. — ALABAMA

DIVISION OF THE SWANN CORPORATION

Preventing Filling Shelling Off in Loom.

EDITOR COTTON:

This is in response to the question from "CONTRIBUTOR No. 4042," who is having trouble with filling shelling off in the loom, as stated in his question in a recent issue.

In addition to the points which he has checked over, I might add that if his frames are band-driven, slack bands will cause soft bobbins, and this will cause shelling off. Filling not properly wound, caused by bobbins rising on the spindles by not being pushed down properly by the doffers, excessive vibration of the spindles, unbalanced and cracked bobbins, all contribute to badly built bobbins and cause shelling off at the loom.

If his spinning would stand a heavier traveler, this would help considerably. If the lifting rods are prevented from descending properly owing to an accumulation of dirt at the rods, soft built bobbins will result. He does not state the number of yarn and size of bobbin being built as to the length of the top taper. If this is not right for the size of bobbin and number of yarn, it will give trouble by shelling off at the loom. Of course yarn will shell off when the filling bobbin has been wound too full, or when the yarn is wound too close to the top of the bobbin.

CONTRIBUTOR No. 4046.

A Method of Counting Warp and Pick.

EDITOR COTTON:

In reply to the question of "CONTRIBUTOR No. 4036," regarding the correct method of counting warp and pick. I note that his chief worry is whether it is correct to count the ends near the selvage or in the middle of the cloth.

I find that the general method, or rule, is to count the ends for the reed nearer the center of the cloth than the selvage. I believe that if he will visualize a warp drawn in the reed 37 inches wide to weave a cloth 34 inches wide, he will find that the allowance for contraction per inch is the same all the way across the cloth. In the woven cloth he will find when it is laid on the table, that though there has been an average contraction towards the center of the piece it is greater (the density of the ends is higher) for about two to nine inches from the selvage. This will vary according to the class of weave, selvage, reed, pick and counts of warp and filling.

There are so many factors that enter in contraction and shrinkage during weaving—contraction means from reed width to cloth width and shrinkage from warp length to cloth length—that it is a matter of judgment to adjust the loom to the cloth being woven. This judgment is secured only by practice and a collection of data from previous experience.

It is a practice among certain manufacturers to weave standard cloths with a "bastard" reed; that is, a reed with a different number of ends per inch near the sides than in the center. For example, in weaving a cloth needing a 64/2 reed (32 ends per inch), 36 inches wide, the dents would be 1,152 and the ends 2,304. I am not allowing for selvages. Some

A Vital Factor in Skein Tub Dyeing

Sylphon TRADE MARK

Accurate TEMPERATURE CONTROL

IT is an established fact that practically every step in the bleaching, dyeing, drying, processing, and finishing of all kinds of textile products can be made to produce better goods with less labor, and in quicker time by the use of a proper Sylphon Regulator.

Temperature is a vital factor in your cotton skein dyeing processes. It is impossible to get uniform results by "hand on valve" control. At best it is uncertain and you get too high or too low a temperature when you require one that is absolutely and positively fixed. Since few dyes require a boiling temperature it is unnecessary to heat the dye solution to the boiling point, generating steam clouds which make for unpleasant and unhealthy dye rooms.

Sylphon Control Is Absolutely Dependable

In hundreds of mills and for many years Sylphon Automatic Temperature Control has proved its absolute dependability in maintaining the correct temperatures for dyeing, bleaching, washing and drying processes, and in avoiding steam and labor wastes and poor quality of product.

The Sylphon Bellows originated and patented by us is the motor element in all Sylphon Temperature Regulators. It insures years of dependable service. Owners, Agents and Overseers should know the various Sylphon Temperature Regulators that are meeting requirements in hundreds of mills.

Write for Bulletins CT-109 - CT-6

THE FULTON SYLPHON COMPANY
KNOXVILLE, TENNESSEE

Representatives in all Principal Cities in U. S. A.
European Representatives, Crosby Valve & Engr. Company, Ltd., 41-2 Foley St., London, W. 1, England.
Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Canada.

manufacturers would make the cloth with a "bastard" reed which would be made 31 dents per inch for nine inches each side, or 18 inches in all, a saving of 36 ends in each warp. This of course varies according to the class of cloth made; in some cases it would be for only six inches on each side. This means that these reeds can only be used for certain cloths and it is only when a cloth is standard and there are a large number of repeats that it would pay to buy reeds of this type.

If the inquirer will, on receiving a sample, place his pick glass with the edge of the templet in the center of the intersection between the ends or picks and count the ends full, not using the terms half or three quarters, and will make the cloth to the same particulars, I do not think that he will have any trouble pleasing his customer. He must use a one-inch pick glass of a good reputable make.

If he has much trouble pleasing his customer I suggest that he get a full width sample. Then he can ascertain the number of ends in the cloth and what reed and pick it counts when woven. If he is analyzing a finished sample he must be careful and look up any data bearing on the same class of cloth or one that is similar to it. There are so many processes that the cloth must go through and it is only by the use of collected data that he can safely work out his particulars for manufacture. Here I would suggest that he look up my letter in the November, 1926, issue of COTTON, "Analyzing for Texture and Cost."

I think that it will be admitted by any textile expert that a piece of cloth, however carefully made, will vary slightly in end and pick. I believe that it is taken for granted that a cloth is evenly woven if the general average comes up to the proper count, that is, if an order is placed for a 64 x 64 and the general average is 64 x 64, the customer has no claim.

There may be certain standards set up in the United States, and I should be glad to hear of them. In Manchester, England, the Chamber of Commerce has set up a testing house situated in the Royal Exchange and their rulings are accepted by the trade generally. In that country, where the trade caters to the home trade and exports to the whole world, the customs have gradually been built up. Some of my remarks refer to one custom, that is the use of "bastard" reeds, and it is only by tying the customers down to a definite statement in writing as to the requirements that the manufacturer can play safe.

C. W. (CANADA).

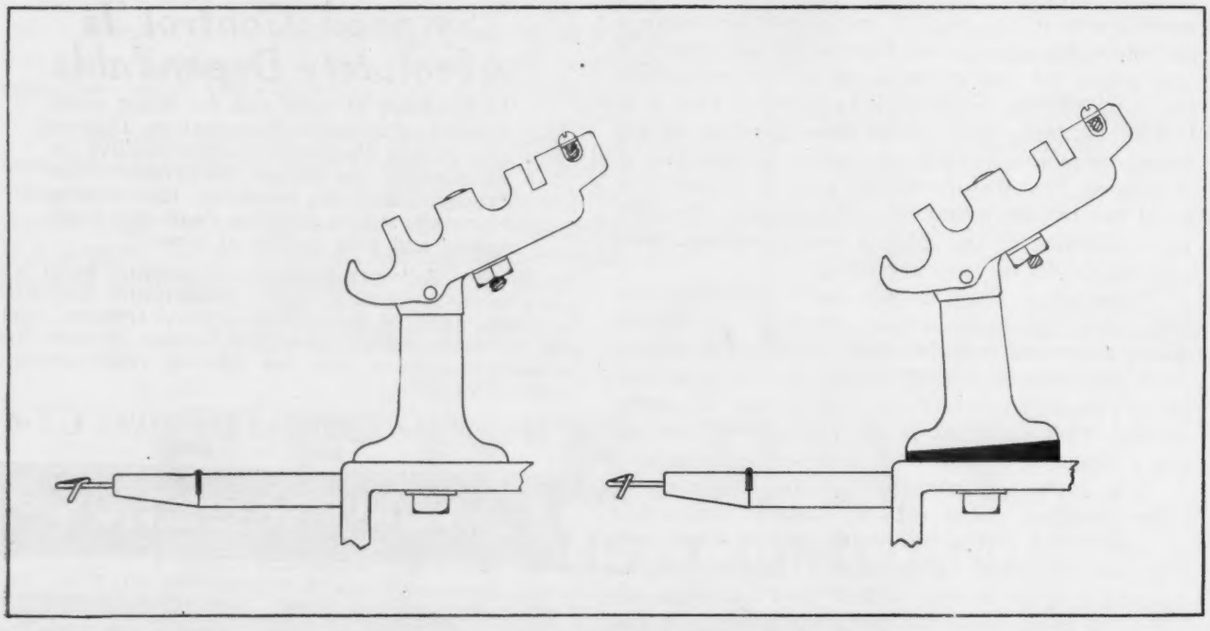
High Angle Roll Stands on Spinning.

EDITOR COTTON:

The demand for better spinning has evidenced itself more during the last year or two than ever before. We can easily find mills resorting to all types of methods to secure these results. There is now a great demand for soft filling with a minimum of twist, especially for goods that are to be napped, and a warp yarn with a consistency of evenness and strength. The filling yarn, however, shall be taken into consideration in this article, more than the warp.

Some mills have been troubled with a kinky filling in the weaving caused by the necessity of using a large twist multiple in the spinning to secure good running work. The use of this large twist multiple also caused trouble in the goods that were to be napped, because of the excess twist. The mills then began to seek a method of eliminating this trouble without sacrificing their good running spinning.

It was found that the reason for running with such a large twist multiple was to force the twist over the steel roller and up nearer to the bite of the rollers, and also, to care for the strain placed on the yarn. When the low roll stands are used they throw the delivery too far from the perpendicular of the spindles. As the spinner knows, practically all the end breakage comes within half an inch of the steel rollers; the



Showing how to insert steel blocks to increase angle of stands.

There Is Profit

in Making Full Packages

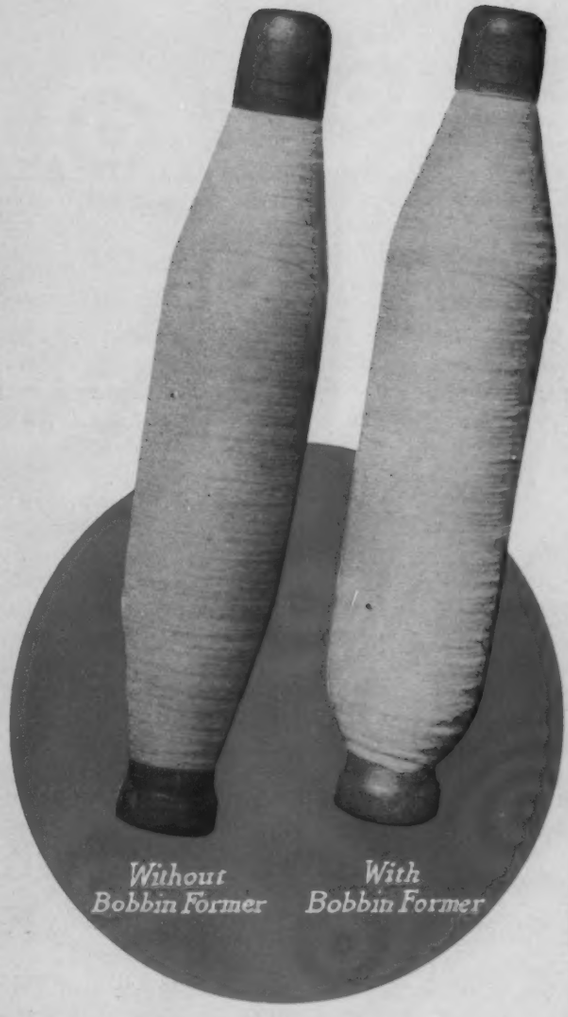
The
BROOME-LYLE
BOBBIN FORMER

enables you to make this profit by increasing the yardage on your bobbins 15 to 30% over present equipment.

With this profit or increase you reduce Doffing and Spooler expense. Less Bobbin changes in looms. Less Bobbin change waste. Enables weavers to run more looms on account of Less Battery changes. No Sloughing of Filling which reduces seconds caused from this menace as well as Filling change marks.

The Broome-Lyle Bobbin Former has already been adopted as Standard Equipment by several of the largest mills in the country.

A representative will be glad to call and explain in detail the many advantages of this PROFIT MAKING DEVICE.



MILL DEVICES COMPANY, Inc.
GASTONIA, N. C.

Northern Office: 44 Franklin St., Providence, R. I.

THE NEWPORT COLORS

Vat Dyes

now include

Anthrene Red FFA

Colour Index 1133 *Schultz 819*

a cold dyeing color of excellent general fastness, suitable for cotton, linen, rayon and pure silk.

Valuable for bluish reds, pinks and shades of rose.

NEWPORT
REG U S PAT OFF
"COAL TO DYESTUFF"

Newport Chemical Works, Inc.

Passaic, New Jersey

BRANCH OFFICES AND WAREHOUSES:

Boston, Mass.
68 Devonshire Street

Philadelphia, Pa.
437 East Allegheny Avenue

Chicago, Ill.
605 West Washington Boulevard

Providence, R. I.
32 Custom House Street

Greensboro, N. C.
226½ North Forbis Street

Greenville, S. C.
Chamber of Commerce Building

Canada
Castle Building, Montreal, P. Q.

Mexico
Av. Isabel La Catolica 64, Mexico City, D. F.

yarn, in most cases, not being permitted to twist up near enough to the bite of the rollers to take care of the short fibers in the roving.

To eliminate the strain and extra twist a new type of stand was devised; a roller stand five inches high with an angle of thirty degrees, and known as a high stand. It was found that the greater angle secured by the use of this stand would allow the yarn to twist up nearer to the bite of the rollers. Also, the greater angle threw the delivery of the rollers nearer to the front, thus placing it nearer to the perpendicular of the spindle and the guide wire.

Since, with the use of this high stand, the twist is allowed to pass up nearer to the bite of the rollers, a lower twist multiple can be used, with the spinner still having good running work. This helps to eliminate kinky filling and a better filling for napping.

It was also found that the frames equipped with high stands could be speeded up. One mill has increased the speed of the front roll seven r.p.m., and the spinners are still able to take care of the same number of sides. This particular mill has changed the stands on 66 frames and they have found that the increased speed was equivalent to the work of three and one half additional frames. They say that these frames will easily pay for the change in six months.

Of course, the high stands will allow a larger clearance for the cleaning of the back guides, clearer rolls and the steel rolls. With the higher stands the doffers are able to raise the thread boards up higher, thus the doffing is facilitated by having the thread guides up and out of the way. This also means a gain in production; although it is a small gain it will amount to a considerable number of pounds in the course of a year.

I also found that there is a remarkable decrease in the end breakage, thus permitting the spinner to run the same number of sides at the increased speed. When a mill can do something to make the work run better, it is not only the quality of the goods turned out, but the satisfaction of the help that counts. The ease of cleaning and the decrease of end breakage helps to insure their satisfaction.

I know of one mill that received an order for cloth that had to have a soft-twisted filling. The requirement was such, however, that they could not make the filling on their regular low roller stands. They solved their problem by placing a steel block under their regular stands. These stands were of a 25-degree angle, therefore, the block was cut to a five-degree angle, being ¾-inch thick at the back. Holes were bored through the base of the stand and the block and a steel wire bradded in, thus securing the block to the stand. This stand gave the same results as the high stand cast with a single base.

The blocking of the stands by this mill was primarily to eliminate the kinky filling in weaving and to secure a soft filling for napping, but the high stands gave such good results that they have now equipped their warp frames also. This mill was able to block their regular stands and change one frame a day with the work of two men. Of course, this work calls for a perfect alignment of the block to the stand and to the roller beam, and also, there must be a slight change in the gearing in the head, this due to the raising of the roller gears.

CONTRIBUTOR No. 4132.

Some Belated Answers for "Old-Timer."

EDITOR COTTON:

In the June number of COTTON, "OLD-TIMER" asked a number of questions. I'm a little late in answering, but his questions will be interesting any time.

The first is with reference to the front roll speed. The front roll speed on any yarn is one of the very important items in cloth manufacturing, and cannot be arranged by any say-so. It must depend upon many factors. We know that many spinners are able to run a faster front roll speed than others because they have studied their machines and know how to make them perform their work properly.

The carder has very much to do with this, indirectly. If his work is as it should be, his spinner will be able to enjoy his work much better, because of the high production and contentment of his help. We know that it is the contentment of the help which is the all-important factor, and this cannot be attained unless the overseer is always on the job.

I believe that the slasher waste, cut off because of beams not running out evenly, is one of the most costly in the mill. It cannot be wholly avoided, but can be cut down to a very low percentage.

Not enough care is taken of the warper to see that the measuring motion is always started at the same place. It only takes a very little to mean a great variation in the length put on the beams. I believe the greatest cause of this waste is at the slasher, and is caused unconsciously, and this is on the tension that the slasher tender put upon the beams. I know that this is true, as it was recently tested on account of the great variation in waste left on the beams.

Spindles should be plumbed at least once each year, because of the rough usage that is given them in piecing up and in doffing. There are various methods in use, but when this work is done often enough, the plumbing can be done with the rail in the center. This is very accurate and is speedy, and it is quite essential unless there is a good surplus of spindles, which is very seldom the case. This work needs a good follow-up, and to test this work, the overseer should occasionally try a frame that has just been finished. This coming unexpectedly, will keep the plumber more on his job.

The weight levers should be looked over every week, and this can be done by the section men, and should not be left to their own discretion, but there should be a day set to do this. I cannot see that the wearing of the lever puts more weight upon the rolls, but the dropping from the horizontal will cause a change in the position of the saddles and cause binding of the rolls, and this is detrimental; as there is not the same free movement of the roll. This injures the work and will cause more end breakage.

We change travelers and find it less costly. We are sure to have a better yarn, as the traveler in good shape will not wear the ring as badly as a poor

NoShades Needed to Eliminate this GLARE!

Suffering and Slow Work Here

MODERN mechanical window shade equipment costs a lot of money these days—both for installation and upkeep (repairs and replacements).

All this heavy expense can be avoided by simply coating your glass with *SKYCO No-Glare.* It saves its slight cost many times over in one season.

SKYCO No-Glare

is a sky-blue liquid that you paint or spray on the glass of your windows and skylights. The resulting film of *No-Glare* FILTERS the intense glaring sunlight, letting in 94% of the light but rejecting *all* of the tiring glare and 15° of the heat (actual thermometer tests).

Comfort and Economy Here

Goes on OUTSIDE of Glass—yet rain or weather conditions do not affect *SKYCO No-Glare.* Neither will it rub or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

Surprisingly Economical

A single gallon covers from 700 to 800 square feet of glass—*No-Glare* costs less than ½c per square foot of glass coated. One application lasts throughout sun-glare season. Absolutely guaranteed.

Convenient Trial Offer

Used by textile mills everywhere. Sold by mill supply houses. Order a trial gallon today at $3.50 and try it on a "glary" window.

THE SKYBRYTE COMPANY, 1420 E. 25th St., Cleveland, Ohio

Reduces Heat 10° to 15° — Yet 94% of Light Maintained

SKYCO NoGlare

Gives a Cool Diffused Light that is Restful

one. The worn traveler causes more end breakage, annoying the spinner, and she cannot do her best work.

Most of the black places in the roving are caused by dirty hands. A speeder tender may be cleaning rolls or wiping down and an end breaks. She wipes her hands on her skirt or apron, thus taking off the top dirt, but when she makes the piecing, the pressure of her fingers leaves a mark. The repair man causes a great deal of this. When called to a speeder his hands are usually dirty, and he will lift off, or feel of a number of the rovings, and each time, a mark is left. The black place is drawn out at the spinning frame and is noticeable in the cloth if on filling yarn; warp yarn is cleaned at the slasher through the boiling size. A slug, of course, is different, and these are caused in wiping down, blowing the frame and from clearer waste. All of these are not seen, and when the goods are shipped it is natural to expect a kick.

It seems to be the natural thing to put twist into roving beyond what is needed. One reason for this is, that the carder does not study his conditions carefully. Machine catalogues are all right to use as approximates, but one cannot always run a room by these speeds or twists. The cotton being run and other local conditions have a great bearing upon this. I personally believe in as little twist as possible. I believe the lesson taught in the schools is right. You will find that most of these teachers are practical mill men and are teaching from experience. When too much twist is put in, the next process must suffer. Take repair work in roll covering alone; that will be reason enough, but the opening of the strand for the drawing between the first and second rolls is essential, and is necessary for correct drafting and the making of a good end in front. A great many overseers, when they have trouble, follow the path of least resistance and insert twist, instead of studying conditions and finding out the real cause of the trouble.

The oiling of bolsters and bobbin gears is very necessary, and yet I have seen a great many frames being oiled, that is, oil being put on, but not reaching, the bobbin gear. Some builders are putting an oil hole in the bobbin gear, but unless the oil reaches the gear it is of no use.

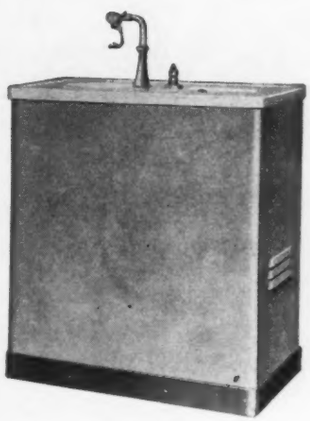
When the bobbin rail is brought high enough so that the top of the bolster is above the uniform diameter of the spindle and the oil put on them, it will reach the spindle and the bobbin gear. Bolsters are oiled because of the high speed of the spindle, and this speed and friction in the two bearings of the bolster will cause a drag and loss of power, reducing the r. p. m. and therefore production. The spindles and bolsters will certainly wear unless properly oiled. I have explained what would happen if the spindle and bolster were dry.

I have not tried to answer all of "OLD TIMER'S" questions because there are others more capable than I, but this is a start, and perhaps others will take up my answers and question them. This is as it should be, for no one of us knows it all.

I always take pleasure in reading "OLD TIMER." His article is always my first, and, a great many times, the only article I have time to read.

CARDER (MASS.)

Frigidaire Water Coolers *a tremendous asset* to cotton mills



Model No. 40-D Frigidaire Water Cooler; complete unit for city water; cools 18 gallons per hour; serves 60 to 70 factory workers; gray Duco finish. Companion cooler, without compressor, for multiple installations.

TEXTILE mills everywhere are finding in Frigidaire Water Coolers the solution for a problem that has long troubled them.

Frigidaire-cooled water brings up the efficiency of mill hands and office workers. Cool water . . . neither too cold nor too warm . . . exactly the same at all hours of the day, *regardless of room or outside temperatures,* is as important as good light and good food. Frigidaire provides this constant, even temperature, and at low cost.

Frigidaire ends completely the bother and expense of servicing ordinary ice coolers. It modernizes the plant, adds to its tangible value and produces dividend earnings far beyond its low cost.

Let us send you complete information about Frigidaire Water Coolers, their low cost, and how you can pay, if you wish, out of earnings rather than out of capital. Write today. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

FRIGIDAIRE

PRODUCT OF GENERAL MOTORS

Without Cost or Obligation Try One in Your Mill

NEITHER something for nothing, nor a free trial offer. Simply a demonstration, without cost or other obligation, made in your mill to determine what a Termaco roving bobbin cleaner or an Utsman feeler bobbin cleaner will accomplish.

We have elaborate reports from mills where Termaco and Utsman machines are installed. These reports show remarkable facts. But mill conditions vary. The only way we can *know* what a Termaco or Utsman will accomplish in your mill is to actually operate one there.

Do not hesitate to write for complete information. We will not make a demonstration unless we sincerely believe it will be of real interest by showing substantially lowered operating costs and increased efficiency.

Demonstrations will be made as quickly as possible in the order requests for same are received by us. Please write for full particulars immediately.

The Terrell Machine Co.

Incorporated

Charlotte N.C. · U.S.A

New York and New England Representatives, General Supply Co., Danielson, Conn.,

How Some Cotton Mills Are Managed.

EDITOR COTTON:

There are some mills that pay dividends to the stockholders, while there are others that just manage to stay a jump ahead of bankrupt courts. In my twenty years' experience as overseer and superintendent in some of the largest and best plants in America, I have observed how other men manage.

One of the big reasons, in my mind, why some mills fail to make money is because of the bad judgment on the part of mill officials in the selecting of the men who are to fill the places of superintendent and overseer.

Some officials employ a superintendent and give him full charge of his plant—a man whose character and ability is not all that should be expected of a man to fill such an important position. This same official will allow his superintendent to select the overseers to run the business and never one time question the ability and character of these fellows who are the key men, that is, who actually handle the help, manufacturing, payrolls and the purchasing of the supplies and equipment for the entire plant. He leaves this in the hands of his men.

The superintendent who drags his set of overseers about the country with him from job to job is a "lame duck" to the mills that employ him, and in the end will prove to be excess baggage when it comes to paying dividends.

In the average small mill without an employment office and well kept records, it is very easy for the undesirable to secure employment. If the "lame duck" type of superintendent and overseer needs help he will hire anyone who may come along, regardless of his or her character and ability—and the mills pay the bill.

Superintendents and overseers should gain the confidence and respect of their employees by fair and square treatment. At the same time they should avoid personal friendship in the management of help, keeping in mind at all times the best interests of the company and all others concerned. A man should handle a plant just as if he were the sole owner.

When a man begins figuring how to get more money without doing any additional work to earn it, that man is at the end of his usefulness in that particular job and if that turn of mind is habitual, he is worthless in any job.

There are certain inviolable laws and principles that govern business and those who earn their livelihood from it. If these laws are followed, success comes; if they are violated, failure just as surely will follow. Of these laws, one of the first and most important is that of reciprocity, a man receives just as much as he gives. If a man expects to purchase a suit of clothes worth $55.00 he must pay an equal value for it. If he would secure a salary of any certain sum, he must give in return services worth that sum, and if he wishes to go forward in his work, he must give more from day to day. He can not beat the game.

Lay out more work than you can do in a day and *do* it. Hitch your wagon to a star, sit tight, and there you are!

BILL (ALA.)

Better Lubrication at *Less Cost* per month

What do Oil-spattered Warps Cost Your Mill?

Looms must be kept oiled but a generous use of liquid oil usually produces a fine crop of oil-stained goods.

Try the better way

TRADE MARK NON-FLUID OIL REGISTERED IN UNITED STATES PATENT OFFICE

MODERN TEXTILE LUBRICANT

Stays in bearings—*always*

You don't have to watch NON-FLUID OIL—it won't run out of bearings—it's made adhesive by our special process.

All loom bearings and cams can be kept lubricated with a small quantity of NON-FLUID OIL—and how that small amount does last! It will surprise you.

As a matter of fact NON-FLUID OIL lasts so much longer, per application, than liquid oil, that *it costs less per month for better and cleaner lubrication.*

Send coupon today for testing sample and bulletin "Lubrication of Textile Machinery."

Lewis W. Thomason, Charlotte, N. C.
Southern Agent

N. Y. & N. J. Lubricant Co. C-3-29

Please send bulletin "Lubrication of Textile Machinery" and samples of NON-FLUID OIL for purposes checked below:

☐ Pickers ☐ Cards ☐ Spinning Frames
☐ Looms ☐ Twister Rings ☐ Ball Bearings
☐ Shafting ☐ Motors ☐ Chain Drives

NAME .....

MILL NAME .....

ADDRESS .....

NEW YORK & NEW JERSEY LUBRICANT CO.
MAIN OFFICE: *292 MADISON AVENUE, NEW YORK, N.Y.*
Warehouses:
CHICAGO, ILL. PROVIDENCE, R.I. ATLANTA, GA.
ST. LOUIS, MO. PHILADELPHIA, PA. CHARLOTTE, N.C.
NEW ORLEANS, LA. PITTSBURGH, PA. GREENVILLE, S.C.

Effect of Cotton on Evenness.

EDITOR COTTON:

A great deal has been written on the proper way to insure even-running yarn sizings in the spinning room and some splendid methods, working to this end, have been advanced. Generally speaking, most of the time, thought and attention given to this question can be classified under two heads.

1. *The care of the carding and spinning machinery.* Those who give most of their attention to this feature of the manufacturing of yarns recommend, briefly, uniform gearing, tensions, rolls and draft, proper oiling of rolls, freely revolving skewers, elimination of undue strain on the roving at every point, true-running, uniform bobbins, etc. Also, there might be added under this heading, the proper handling of the stock, such as picker laps of correct weight, proper piecings of laps on pickers and cards, careful creeling on the frames, elimination of all so-called "singlings" and "doublings," or light and heavy work.

2. *The allowance for change in the atmospheric conditions.* This is quite an important factor, and in many instances has been worked down to a nicety. Charts have been worked out showing what the sliver at the drawing frame should weigh for a given humidity, and if the weight does not come within the specified limits, the work is lightened or heavied, as the case may be. Mills are giving constantly increased attention to their humidifying equipment, and are separating the different departments by partitions so that the correct humidity can be maintained for the particular process.

In each of these considerations the attention to yarn numbers is given within the mill, i.e., to the manufacturing process itself. As stated, these are highly important, and the purpose of this article is by no means to minimize the importance of the work done by the carder and spinner. There is an additional feature to this business of evenness of numbers which is probably well known, but about which little, if anything is said. It is the matter of the uniformity of the cotton itself.

Before the carder or spinner gets the opportunity to show what he can do, he is often handicapped by the unwise, careless purchase of cotton. There are a great many good and bad results in the mill that can be traced directly to the cotton, but its relation to yarn numbers alone is considered in this article. Evenness of yarn numbers is highly important to every mill trying to make yarn of given counts and strength, and is particularly important to mills making large numbers of warps. A superintendent, and friend of the writer's, using 1 3/16-inch Delta cotton, carefully classed and graded, making 40s/2 carded, in warps, skeins and tubes, has run a 10,000-spindle mill as long as ten months at a time without having to change a draft gear. That is a striking example of the importance of the cotton in keeping the yarn numbers true to size.

The observation and experience on which the subject matter of this article is based have been gained in a mill using 7/8-inch to 1-inch cotton in one department and 1 3/16-inch cotton in another, both running carded work. In the main, the former will be referred to, but it might be stated here that the long-staple mill verifies the statements made about the short-staple mill.

The most obvious variations in the counts of yarn occur when a change is made in the length of the staple. There are a number of mills using 7/8-inch to 1-inch staple, and there are times when they get all 1-inch and times when they get 7/8-inch and shorter. Mills in the section under the writer's observation buy their cotton locally for the first few months of the season, but the warehouses and finances of the mills are usually limited, and most of the cotton in their neighborhoods passes into other hands. After the first few months of the season the mills must depend on shippers for their supplies. And 7/8-inch to 1-inch cotton bought from shippers is not as good average staple as the same description bought from the farmers. It is naturally classed closely by the shippers. Whenever the mill begins running this shorter staple cotton, the numbers will get light, often necessitating as much as a three-tooth change in the draft gear of the roving frames. The mill under the writer's supervision has been running all Carolina cotton, and the numbers have been running evenly. A shipment of 7/8-inch from Tennessee, Mississippi and Missouri has been received, and to avoid running this short staple alone, one bale of this cotton is mixed with two of the Carolina. The yarn sizings begin varying immediately, running as low as 39 grains and as high as 43 grains for 24s/1 yarn, whereas, they had been weighing evenly from 41 to 42½ grains.

Also, the matter of the character of the cotton is important insofar as even yarn number is concerned. The writer's understanding of character is that it refers to cross section, spirality, maturity and strength of fiber. What is known as hard-bodied cotton will certainly make heavier yarn than soft cotton. This is attributable to two factors; namely, before reaching the mill the hard-bodied fiber has lost none of its original properties and constituents, and that when being run in the mill not as much of it will be lost in fly and invisible waste as is the case with the softer cotton. With particular reference to the cross-section of the fiber, it is my opinion that the finer fiber cotton will make a heavier yarn than the coarser fiber. The rolls of the roving and spinning frame can handle more of the fine fibers, there will be a greater number of fibers to a given cross-section of yarn or roving, and the resultant yarn will be heavier.

The matter of the grade of the cotton speaks for itself. It is evident that the more foreign matter the cotton contains, the greater the loss.

In conclusion, the carder and spinner, by the nature of their work, must keep their noses close to the grindstone. Those who have charge of the buying and classing of the cotton can do as much, or more, toward keeping the yarn numbers uniform as the men who work only within the mill. Our 1 3/16-inch cotton comes from what is known as the Delta; it is classed carefully. In that mill, where a small variation on 40s makes a big difference, we change gears about one-fifth as much as in the other mill on 7/8-inch cotton making 24s. Cotton bought in large lots,

from as nearly the same growth as possible, of even running staple, character and grade, will go a long way toward eliminating the evils of varying yarn numbers and their consequent losses.

B. B. (N. C.)

Figuring Average Weave Room Production.

[An unusually large number of readers replied to the question of "Contributor No. 4085," who asked for a method of figuring weave room production in a room producing several different styles of goods, with different speed looms. Though many of the methods given in these letters are similar, we shall publish all of them, in order, in line with our regular practice, the first two appearing below.—The Editor.]

EDITOR COTTON:

A method for figuring average production in a weave room where several different styles of goods are being produced regularly on several different speed looms is requested by "CONTRIBUTOR No. 4085" in a recent issue. He asks, "do they (other mills) take the theoretical production of each loom and the actual production, adding the two and dividing the actual by the theoretical to get the average for the entire room, or just how do they figure the average for the total room when they have different speeds and different pick goods producing different percentages for the week?"

It is possible to arrive at a correct answer by taking the theoretical production of each loom and the actual production, adding the two, and dividing the totals of the actual by the totals of the theoretical to get the average for the entire room. It must be kept in mind that this method would not hold good unless the production of each loom is used, or unless the looms are divided into groups of an equal number of looms. It will not hold good for groups of looms with an unequal number of looms in the groups.

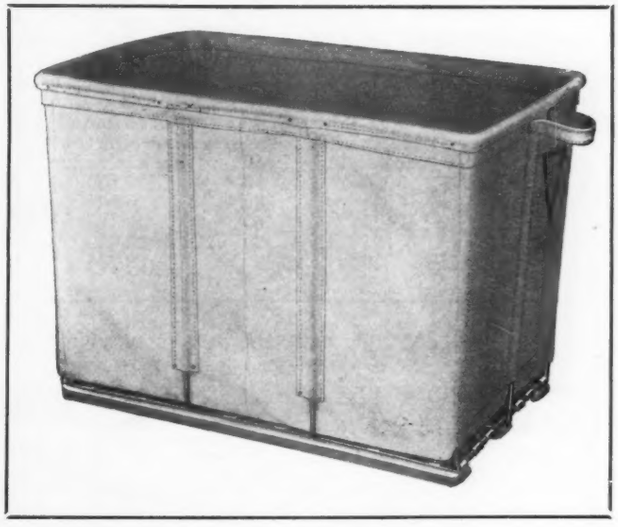
A better method of figuring the percentage of production for the room is to group the different styles together, get the percentage of production for each style, and then figure the percentage of production for the room from these different style groups. This can best be shown by an example. Let us assume that we have a weave room with 870 looms on styles and speeds as shown in the following table:

Style No.	No. of looms on each style	Loom Speed	Theoretical Produc.	Actual Produc.	Percentage of Produc.
101	250	128	7,500	6,750	90
102	300	128	8,000	6,800	85
103	125	152	10,000	6,500	65
104	195	162	8,500	5,950	70
Totals	870		34,000	26,000	

Dividing the actual production by the theoretical, we get

$$\frac{26{,}000}{34{,}000} = 76.47$$ per cent the *apparent* average production for room.

This is not the correct average production for the entire room. This method would give the correct result only in case the number of looms in each group hap-



PROOF AGAINST

•sagging
•warping
•and bending

ROCKWEAVE
baskets and trucks

Rockweave canvas products are built for the hardest use. They have frames of round, specially tempered spring steel, and resilient, galvanized strap steel bands, riveted both crosswise and lengthwise to the steel frame—which form the most protective bottom yet devised.

Triumph Duck is used for all coverings. It is made in our own mills, and is much harder wearing, weight for weight. The top rims are bound with chrome leather. Basket shoes can be replaced if they become worn. The trucks are made of selected clear oak and maple. The workmanship in each case is on a par with material . . . fully guaranteed against flaws.

Rockweave canvas products are in a class by themselves, but our facilities enable us to price them right in line with the market. Standard sizes are ready for immediate shipment. We can also make special sizes for your requirements on short notice, and at reasonable prices. Our salesman can supply full information and take your order. Or you can write direct.

ROCKWEAVE MILLS

CANVAS PRODUCTS DIVISION
DIVISION CALLAWAY MILLS
LaGrange, Georgia

pened to be equal in number. The correct method to use in figuring the room production is shown in the example following:

Style No.	No. of looms on each style	Percentage of Produc.	No. of Looms Times Percentage of Produc.
101	250	90	22,500
102	300	85	25,500
103	125	65	8,125
104	195	70	13,650
TOTALS	870		69,775

$\frac{69,775}{870}$ = 80.20 per cent, the *correct* average production for the room.

The speed of the looms cannot be used other than in calculating the percentage of production of each loom or each group of looms on one speed.

J. W. C. (TENN.)

EDITOR COTTON:

I am sending you herewith, a form on which we compile the figures of a week's run in our weave room, showing the production. I believe that this will explain how we figure the efficiency of our entire weave room, where the picks vary from 158 per minute on our 40-inch looms, to 163 on our old model looms and 165 on our 36-inch looms. I am sending this in answer to the question of "CONTRIBUTOR No. 4085," whose letter appeared in the December issue of COTTON. He wanted to know how to figure the average production of a weave room containing different widths and speed looms, making different constructions of fabric.

We figure the possible yards for 55 hours at 100 per cent efficiency, according to the picks per minute the loom is making on that style. As you will note, this is done for each style of goods made. We then total up the actual number of yards. Next, we total the number of *possible* yards at 100 per cent, and, when this is divided into the *number of yards produced*, it gives the total weave room efficiency. That is, 278,864 (actual yards produced) ÷ 263,184 (possible yards at 100 per cent) = 105.5 per cent, the average efficiency for the whole room. Please note this is *not* secured by taking an average of the individual style averages, these being figured only for information in each case. That's the way many do it wrong.

The sheet I am sending you includes the noon hour run, which of course adds 10 per cent, so that the actual efficiency during the week in question would be about 95.5 per cent in place of 105.5 per cent as shown.

CONTRIBUTOR No. 4096.

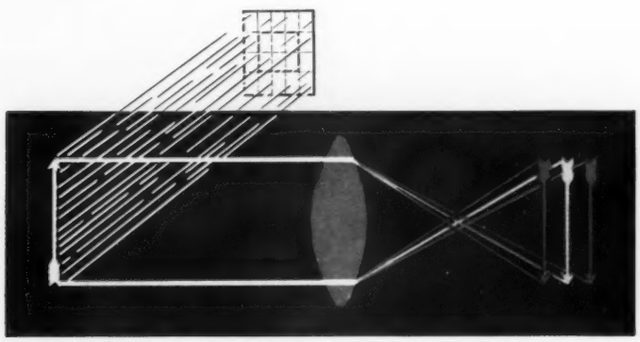
WEAVE ROOM PRODUCTION — 55 HOURS

STYLE	LOOMS RUN	YARDS PROD. ACTUAL	POUNDS PROD.	POSSIBLE YARDS @ 100%	YARDS PER LOOM PER DAY	PER CENT EFF.
165 PICKS						
37"-4.00	266	88360	22190	82992	60.4	106.5
36"-4.50	72	31426	6983	29952	79.5	105.0
36"-5.50	82	29737	5406	27798	65.8	107.0
TOTAL	420	149523	34579	140742	64.7	106.3
163 PICKS						
36"-4.00	148	38235	9559	36408	47.0	105.0
158 PICKS						
40"-3.60	144	36179	10049	34272	45.5	105.5
36"-4.50	96	40497	8999	38112	76.5	106.0
36"-5.50	42	14430	2624	13650	62.5	106.0
TOTAL	282	91106	21672	86034	58.7	106.0
GRAND TOTAL	850	278864	65810	263184	59.4	105.5

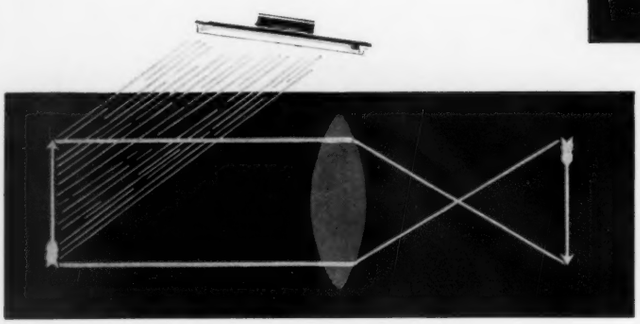
278,864 (actual yards produced) ÷ 263,184 (possible yards) = 105.5% = average production for entire room

Form used by "Contributor No. 4096."

DO YOU KNOW why yellow-green light makes VISION *sharper and easier?*



Diagramatic illustration of the effect produced when white light passes through a lens such as that in the human eye. The light is split into its various colors only one of which can be focused sharply. The other colors being slightly out of focus tend to make the image hazy.



When Cooper Hewitt light which is 90% yellow-green passes through a lens similar to that in the eye, the image produced is sharp and clear, for the effect is practically that of a single color, and that the best seeing color and the easiest on the eyes.

HUMAN eyes are unable to bring all the colors which compose "white" light to a focus on the same surface. If they focus for red, then blue and violet will be out of focus and the other colors also, to a less extent. The unfocused colors make the image we see slightly hazy. It lacks that decisive and desirable sharpness which appears in light of a single color.

What the eyes do when white light enters is to compromise by focusing on the intermediate color, yellow-green. And because our eyes have always done this in daylight, they have become most sensitive, visually, to the middle range of colors, yellow and green. Nature has attended to that!

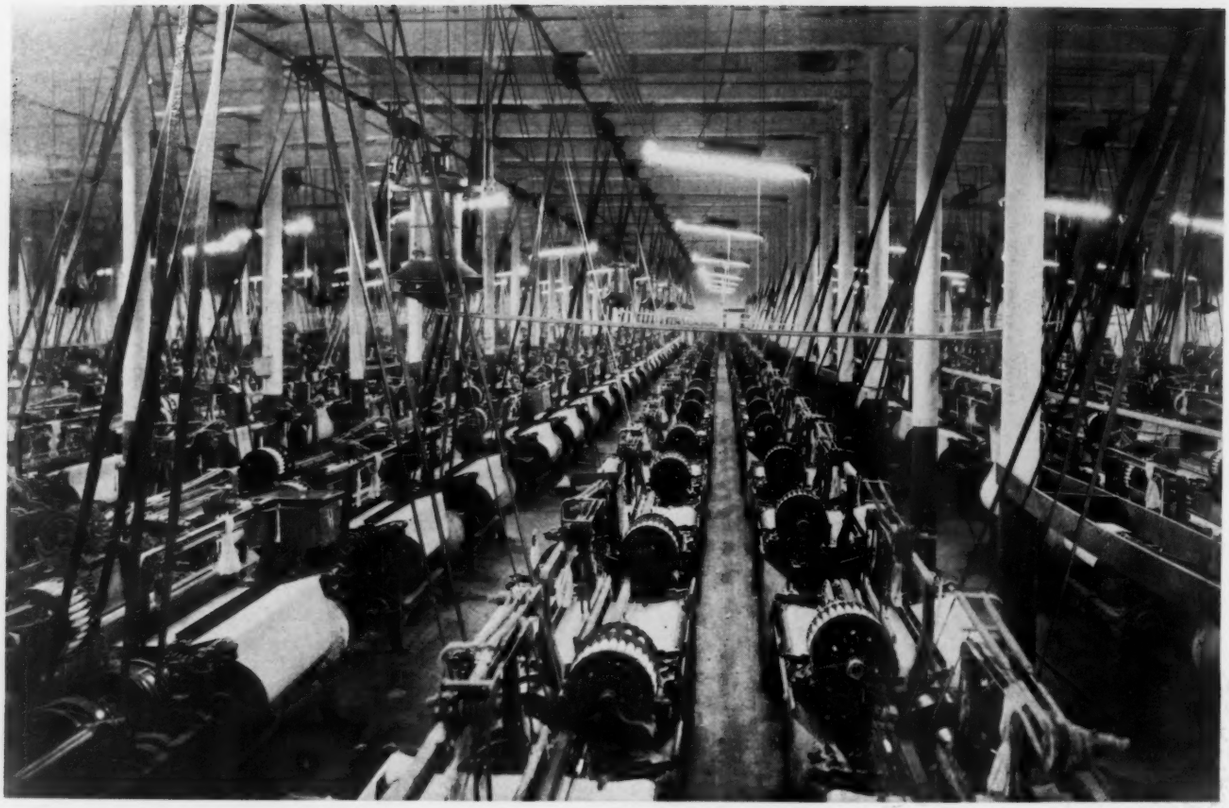
Now Cooper Hewitt light, having 90% yellow-green (colors so nearly the same in wave-length that the images focus virtually as one), gives in practical effect a single color and that the very one with which the eyes see best.

The result is that objects viewed in Cooper Hewitt light, especially fine details, stand out so sharp and clear as to appear magnified. The eyes get the benefit of a preponderance of the colors by which they see most easily—with least strain—namely, yellow and green.

This is one of the many reasons why Cooper Hewitt light actually is better than daylight,—why it is used so extensively in industry where good seeing is most important. Cooper Hewitt Electric Company, Hoboken, N. J.

COOPER HEWITT

A General Electric Organization



In the weave shed of the Lancaster Cotton Mills, Lancaster, S. C., every thread must be seen perfectly— so they use Cooper Hewitt illumination

843a © C. H. E. Co., 1929

Don't let short days or dark days cut your production

Not a mere claim — a statement of fact

Cooper Hewitts are better than daylight not only because they give constant intensity 24 hours a day but because they yield 90% yellow-green (the best seeing) rays, and have none of the glare-producing qualities which are hard on the eyes. As a result, every detail becomes sharp and clear as if magnified, vision is more acute and the response of brain and hand is more rapid.

TOO much dependence upon "Old Sol," even in so-called "daylight" mills, is sure to cut production or impair quality. One or both of these profit-eaters always bob up when workers cannot see perfectly.

That is why so many textile mills are installing Cooper Hewitts. They have learned that its cool yellow-green light makes seeing easy regardless of weather conditions, season, or time of day.

In many cases this advantage has resulted in so marked a reduction of seconds, with consequent increase in output, as to pay for the new lighting equipment within a few months, while a handsome return upon the investment continues. It is just such modernizing which enables some mills to prosper while others find it difficult to make any profit.

Read the paragraph at the left explaining why Cooper Hewitts actually are better than daylight. Then resolve to *try* them (without obligation on your part) in some section of your mill where better lighting is needed. Our lighting experts are always at your service. Cooper Hewitt Electric Company, 853 Adams Street, Hoboken, N. J.

COOPER HEWITT

A General Electric Organization

Some Interesting, Though Delayed, Comments.

EDITOR COTTON:

It may seem to you that I'm a little tardy in getting the following comments to you, as they refer to various letters that appeared in the discussion department of the June, 1928, issue of COTTON. However, I am resting my case on the old axiom of "Better late than never"—and, as a matter of fact, discussion of mill problems is always pertinent.

On page 827 of the June issue, a man asked a question as to how to prevent pickers from sucking back motes and trash. I would suggest that he investigate his fan speed; I believe it is too high. It is necessary to have a good draft in order to carry forward the loose cotton, but if cotton is opened properly by the beater, the same results will be obtained with less fan draft. I cannot tell him the proper draft to use. He must find this out by trying various speeds on his fan. When we realize that the draft must enter where the motes and trash are falling out, we find that this problem is great and needs careful study.

Cleaning Spinning Frames.

"CONTRIBUTOR NO. 4025" has a very good system of cleaning, and if carefully followed, will keep the frames in good condition. There is one thing that will always be against the spinner, who does the piecing and putting in of roving, doing any cleaning where there is a tendency to get the hands covered with oil and grease, and that is, having yarn that is clean. I have seen an arrangement where the spinners were not allowed to touch anything whereby they would collect dirt upon their hands. They of course ran a greater number of spindles. All this cleaning was done by special hands, and under these conditions no more help was needed. The cleaners were always cautioned about touching either roving or yarn.

Methods of Oiling.

On page 831, there is an article on oiling, and this man has given us the right dope. There is not enough stress put on the value of a good man for oiling. It seems to be the thought that anybody can do this. I have tried the method of having a young man do this. In some cases it was quite successful, but in others, detrimental to the machines. The proper man to teach a new oiler is the man who must do the repairing, knowing the extra work he must do on account of improper oiling. The best oiler I ever had was a man quite well advanced in years, who had been a mule spinner. These men are taught to find out from experience, what the lack of oil means. One who loses some of his week's wages because of the neglect to oil properly, does not often forget, after the first lesson. The great tendency is to hurry through. There is often too much other work put upon the oiler, and to do this properly, he needs time. He usually takes it from his oiling. I fully believe that if we would make the pay of the oiler large enough in comparison with its value to the mill, we would be able to get much better men, and they would stay with us longer.

Value of New Equipment.

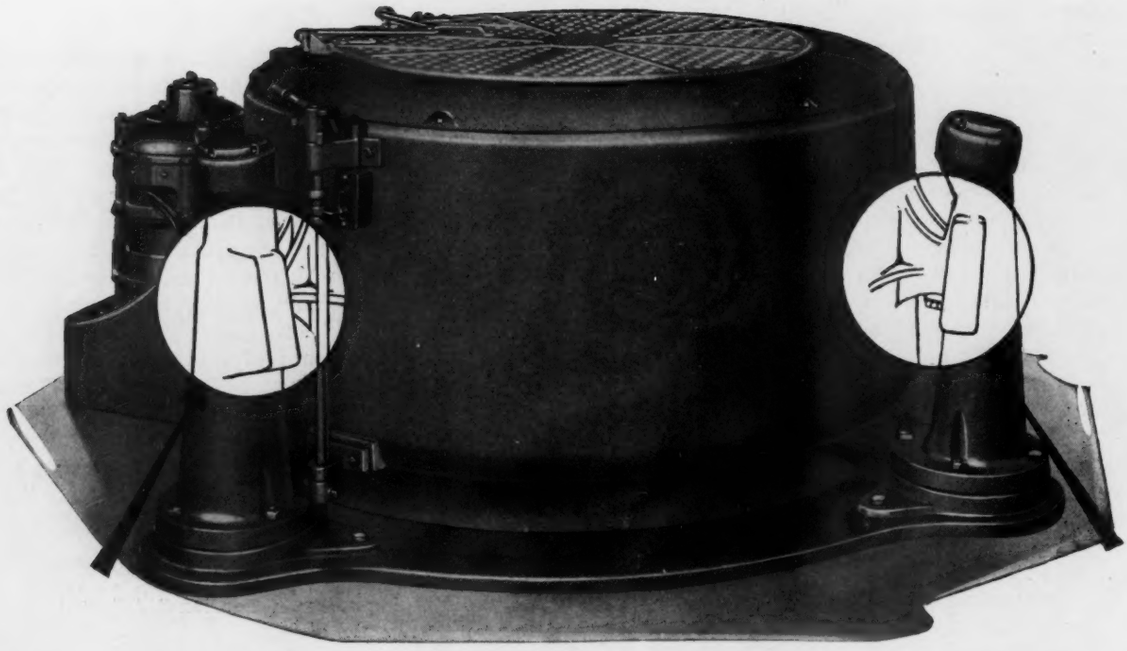
"L. B. (TENN.)" on page 840 urges better equipment. Wouldn't it be a wonderful thing for the overseer and superintendent if the officials of our mill could, or would, understand the amount they lose each year by keeping in operation equipment that has served its purpose. These same men will not keep an automobile one minute after it begins to lose its pep. Why will they not be as interested in the upkeep of the machinery which must earn for them their bread and butter? Why, we only have to look at the big steel mills which often scrap machinery three or four years old because of some new improvement which will reduce their cost of production. This also holds good in our mills. How can they expect machinery 20, 30 and 40 years old to compete with the latest improvements. Look at our best mills today and we find that they are continually replacing the old with the new, and in a short time these machines are more than paying for themselves.

Keeping "Human Tensions" Adjusted.

In his letter on page 841, another man has given us one of the best angles on tension that I have ever seen, and the more you think about it, the more you are sure that he is right. This tension of the overseer not only affects himself, but everyone with whom he comes in contact. It is surprising to know how quickly the help sense how the boss is feeling. If he is "right," so are they, and they start off happily. On the other hand, just notice how the opposite state of affairs works. They are nervous and fidgety and therefore do not do their work as efficiently. So we had better watch ourselves, making sure that our tension is right before we start around our room. We can regulate this if we will, but do we always want to?

The Man for the Job.

In regard to the man for the job. There are two sides, always. I do not believe that any young man from a textile, or any other school, is capable of coming directly to a mill and taking charge, and anyone who instills this idea into the mind of a textile student is only injuring him. I am much interested in these students, but would never employ one direct from the school to take charge. He needs close contact with the help in any industry to enable him to know how to handle them. On the other hand, there are numbers of men who have given many years to their work, yet will never be able to handle their help successfully. Many of these men believe that advancement should be based simply on the length of service. This length of service naturally must have a great bearing upon the choice, but if a man has not studied, with a view to improving his work, the chances are that he will be very deficient. The knowledge which the textile student has obtained should, and will, enable him to advance more rapidly than one who has only the practical training. These students are taught to think around all sides of a question and to thoroughly sift the matter before making a decision. Of course hu-



Maintenance Costs and Production---the Tolhurst Center Slung Is Approved on these two Points

The Tolhurst policy of progressive development has produced the side motor driven Center Slung Extractor which shows so many advantages in production, low maintenance and operating economies. Its simple design and precision construction include many refinements that make its greater worth possible.

One of the factors that contribute to its economical operation and dependable day-in-and-day-out performance, is the arrangement of the drive. Here the V-Belt and Tolhurst Clutch maintain a low power curve, with no peak load upon the line. There is no strain upon drive, motor or machine. Therefore, in combination with those other Tolhurst features of patented center slung suspension and positive alignment of bearings, a trouble-free, smooth-running unit is assured.

If you would enjoy the convenience, tremendous production possibilities, simplicity and ease of operation and the speeding up of cycles achieved through the Tolhurst Center Slung—

Write today for complete information, mailing this coupon to the nearest Tolhurst office.

TOLHURST
REG. U.S. PAT. OFF.
CENTRIFUGAL
EXTRACTORS
TOLHURST MACHINE WORKS ESTABLISHED 1852 TROY, N.Y.

New York Office: 183 Madison Ave.
Chicago Office: 8 So. Dearborn St.

Southern Representative:
Fred H. White,
Independence Bldg.,
Charlotte, N. C.

San Francisco Representative:
B. M. Pilhashy,
Merchants Exchange Bldg.,
San Francisco, Calif.

Canadian Representative:
W. J. Westaway,
Westaway Bldg. Hamilton, Ont.
275 Craig West, Montreal, P. Q.

Tolhurst Machine Works
Please send me catalog describing the side motor driven Center Slung Extractor and illustrating its advantages.
.....
.....
.....

man nature is the same in our schools as elsewhere, and there are many students who expect to start right at the top. They meet with quite a cold reception when they get out, and sometimes are wise enough to start in right. It seems to be a fact that when a student comes into the mill all hands try to upset him, sometimes purposely putting him on the wrong track. Probably they realize that with his technical training, and a few years of practical experience, he will be much further advanced than they. This is as it should be, and if the man who cannot afford to attend these schools will devote some of his spare time to the same kind of studies which the student has had he will be surprised to find how much better he can do his own work and how much more it is appreciated. This he does not always see, but no man can do this and it not be detected by the officials higher up. By being fair to both, using common sense in argument and choice, we will all progress more rapidly.

CARDER (MASS.)

"Running Double and Twisted Selvages on Slashers."

EDITOR COTTON:

I read with much interest the article by "Old Timer" in the October issue of COTTON, on, "Running Double and Twisted Selvages on Slashers." I have had quite a lot of experience on this type of work as we run some cloth that is used in making umbrellas. This cloth was found to run so much better than the other cloth that we changed all our cloth styles so that we would use double threads in all our selvages. On this type of work it is customary to run the warps with two single threads drawn in the reed two to a dent, so we put double threads in and now we have only one double thread to the dent instead of two single threads and the work runs much better.

On steel harness where the harness acts as the stop motion it is much more satisfactory, because when an end breaks the stop motion is more positive. Where there are two single threads drawn through each eye there is a chance that the thread that does not break will keep the wire from dropping down and stopping the loom. On the double thread there is nothing to hold the drop wire up when the end breaks.

We tried several methods of slashing these threads from the warper beams, but to make a long story short, we found that the best and cheapest way was to put as many ends per beam as were required on the loom beams. We had to skip dents on the warper comb and it ran off nicely on the slashers. We run the double threads through the size box with the single threads and get along fine with it. We run 30s warp and as high as 2,500 ends per set with from 16 to 110 double threads on each side of the set.

We tried putting all the double threads on one beam. But running 30s single yarn (the plied yarns were made from 30s), we found that the single threads were not strong enough to hold up in separating at the lease rods. With the 30s/2 running side by side with the 30s single, the size made them sort of mat together with the result that it was difficult to separate the single yarn without an occasional break.

T. A. D. (GA.)

Facing the Facts of his Job

When your weaver looks at a Veeder-Root Counter, he faces some real Supervision.

He faces the need of attentive *work*, to keep his record of picks up to the standard.

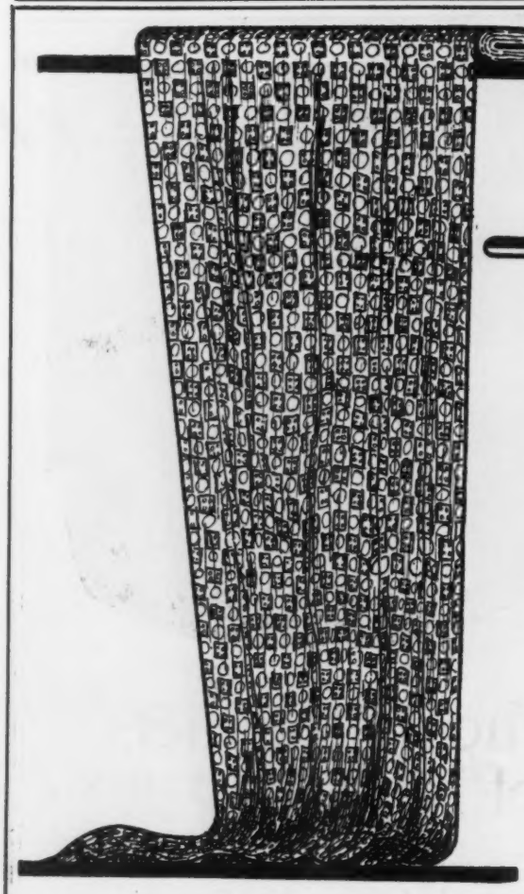
He faces the fact of how much he's worth —in wages earned "by the pick."

And the closer he watches his record of picks, the closer he comes to *high records*. He knows where he stands on production hour-to-hour. He makes the minutes count in recorded *output*.

Veeder-Root Textile Counters supply supervision to most all jobs in a mill. They will help you solve any production-problem or labor problem. Write for textile counter booklet "C," or ask for a trial of the Counters.

Veeder-ROOT INCORPORATED HARTFORD, CONN.

General Southern Representative:
W. A. Kennedy, Johnston Bldg., Charlotte, N. C.
Special Representatives for North and South Carolina:
Carolina Specialty Co., Charlotte, N. C.



Printers, too

can profit by the technical service of a highly specialized department

Specialties for Printers

Indanthren Colors
Algole Colors
Rapid Fast Colors
Naphtol AS-D
Fast Color Salts

GDC

GENERAL DYESTUFF CORPORATION

Sole Distributors in the U. S. A.
of the dyestuffs manufactured by

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT
Frankfurt a. M., Hoechst a. M., Leverkusen a. Rh., Ludwigshafen a. Rh.
and by
GRASSELLI DYESTUFF CORPORATION
Albany, N. Y. and Grasselli, N. J.

230 Fifth Avenue, New York, N. Y.

BOSTON 159 High Street	PHILADELPHIA 111 Arch Street	CHICAGO 305 W. Randolph Street
PROVIDENCE 40 Fountain Street	CHARLOTTE 220 W. 1st. St.	SAN FRANCISCO 38 Natoma Street

Cloth Weaving Longer on One Side.

EDITOR COTTON:

In a recent issue of COTTON I note that "L. D. (GA.)," is having trouble with his cloth weaving longer on one side than on the other. The fact is, I believe, the trouble he is having is coming from the weave room.

There are several things that can be causing this, tight or slack selvages; whip roll not being level or in line with the breast beam; harness not set level; sand rolls not properly covered, and last but not least, too much templing on one selvage.

If "L. D." will take a cut of cloth from the loom and unwind it on a table he can then see that his trouble is coming from the weave room. It will show up before he begins to brush, sew, calendar or tenter and then is the time for him to go get his weaver and wake him up. It can be that his machinery is not level and square, this will cause his cloth to weave bias instead of straight.

Slack selvages have run a lot of overseers of finishing batty; but the trouble is, and has always been in the weaving. Crooked checks and bowed checks come from the loom and should be remedied there. "L. D." will find that bowed cloth or slack selvages is the hardest proposition a finisher has to contend with.

I hope that the foregoing will help him some, but first, he should get the machinery right and then go after the weaver.

P. P. (MISS.)

Preventing Mis-picks and Shuttle Marks.

EDITOR COTTON:

I noticed in a recent issue that "R. C. (GA.)" wants to know how to prevent shuttle marks and mis-picks in three-leaf drills on E Model Draper looms, and am pleased to offer my suggestions.

I do not know whether he is running his looms on what is known as a double change, that is, whether he has the looms set to change bobbins when the filling breaks or does the loom stop. Assuming that his looms are set to stop off when the filling breaks, as they should be, I am going to offer my ideas as to what will help him.

In the first place, how are the rocker shafts and rocker bearings on the looms? If they are worn, the lay will rise up when the transfer bunter strikes the latch to effect the change of bobbins, and will cause the hammer to go too deep in the shuttle. This will cause the filling to break.

How about the position of the shuttle in regard to the transfer hammer? When the loom is on the change and the lay on the front center, is the hammer as near the back of the shuttle as it can be set without striking the shuttle? If it isn't it should be, for the lay is coming forward when the change takes place, and if the hammer sets in the center of the shuttle when the loom is one the front center, it was not directly over the center of the shuttle when the change was started, so it must be rolling the bobbin in at the front of the shuttle.

How about the lay guides on the swords? Are they

ORIGINAL and GENUINE
"The Leather with the Hair on"
Bondaron
REG. U. S. PAT. OFF.

HARNESS STRAPS

Last 4 times as long

THIS is not a claim which is based on how good we think Bondaron Harness Straps are, but a fact which has been proven by comparative tests in some of the largest weaving mills in the country.

The adoption of Bondaron as Standard by a number of mills has boosted production through the banishing of costly stoppage of looms, loom fixers' time and seconds in cloth.

Let us give you further information on this item which means much in minimizing operating costs.

Send for sample

CHARLES Bond COMPANY
Manufacturers of Textile Leathers
617 Arch Street
PHILADELPHIA, PA.

One season all year 'round

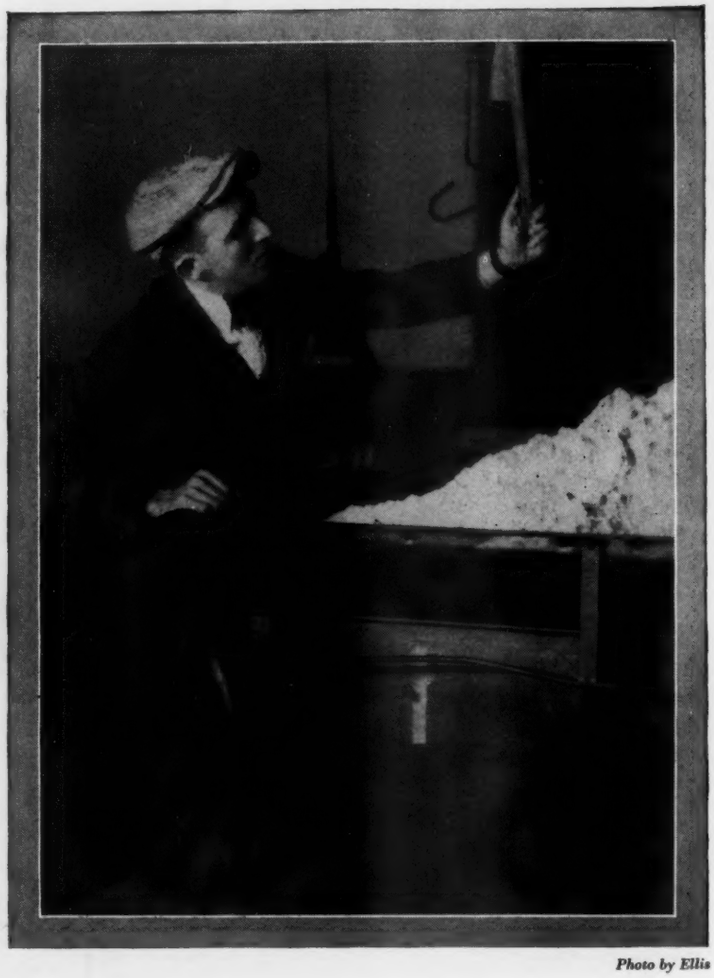


Photo by Ellis

WHETHER it's snowing or whether it's broiling; whether it's spring or whether it's fall, here's one place where the season never changes as much as one degree Fahrenheit. The ageing room in a du Pont rayon plant is a world apart, carefully insulated against heat and cold, moisture and aridity.

Here, one of the most delicate of all rayon processes takes place—the ageing of the mercerized and shredded pulp. The success of all subsequent operations depends on the accuracy with which this one is conducted.

The temperature of each lot of white, fluffy "crumb" is carefully checked as it enters this room; even the automatic thermometers that control the temperature of the room are checked so that ageing shall be completed with scientific uniformity.

There is no room for guessing at any step in the long process of du Pont rayon manufacture. The du Pont standard of chemical control permits no compromises, no expedients. More than two hundred men in each du Pont plant do nothing else but guard the quality of du Pont rayon from pulp to finished yarn. There can be no substitute for such exacting control. *Du Pont Rayon Company, Inc., 2 Park Avenue, New York City.*

Rayon yarns by du Pont: **SUPER-EXTRA . . LOLUSTRA . . CELTA**

Member Rayon Institute of America, Inc.

DUPONT RAYON

REG. U.S. PAT. OFF.

tight so as to prevent the lay from playing end-wise, when the loom is running. How about the tension in the shuttle? When the shuttle is at home in the battery end of a 30-inch loom, there is nearly enough filling let off of the bobbin to reach back across the cloth, and the tension in the shuttle should take up all this slack before any more yarn leaves the quill. If it doesn't there will be a slack pick.

Some fixers, when a pick cam slips back a little, will take up on the lug strap rather than move up the cam to the right place. This is bad practice. My rule for setting the pick on E Model looms is to have the pick cam set to the pick on top center, put the shuttle in the left-hand box and put the lay on front center. With the loom and shuttle in this position, the right-hand picker stick should just take the slack out of the lug strap when pulled clear back in the right-hand box. Now, turn the loom and set the other end in the same way. There will be a two-inch clearance between the picker stick and the bunter when the stick is at its forward point, and the loom will run without jerking when picking, which is desirable when running single fillings.

Last but not least, I say that all parallel blocks and box linings and pickers should be good. If he will check up on all of these things I believe he will overcome most of his trouble. Of course, I submit these ideas for what they are worth.

W. T. (GA.)

Booklet on Rayon.

The story of the development of a powerful element in territory formerly the exclusive property of the cotton, wool and silk industries is told in a new report issued by the Policyholders Service Bureau of the Metropolitan Life Insurance Company.

"Rayon: A New Influence in the Textile Industries," outlines the remarkable strides made commercially by rayon during the past few years. One of the salient facts brought out in the report is that in 1927 rayon consumption in the United States surpassed silk consumption in volume. A brief history of the development of the rayon making processes introduces the reader to the main sections of the study which take up plant requirements, a discussion of the volume necessary for profitable operation, an analysis of the uses of rayon or rayon mixtures, their major selling points and the income groups showing the strongest response to rayon products.

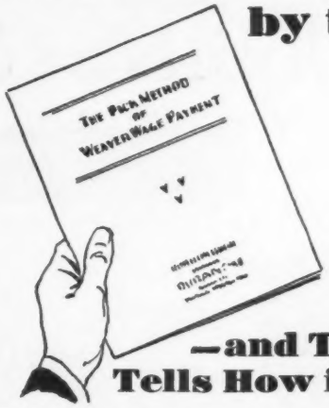
Tables showing the annual American consumption of wool, silk, cotton and rayon for the past few years support the text. In addition, the appendix contains four tables which show the relative positions of the various rayon producing processes in the leading countries, the volume of rayon and other fabrics by years and kindred significant data on the industry's growth both here and abroad. This publication may be obtained on application to the Policyholders Service Bureau of the Metropolitan Life Insurance Company, 1 Madison Avenue, New York City.

Announce Enlarged Texrope Stock.

With an increasing demand for immediate delivery of transmission machinery, Allis-Chalmers Mfg. Co., Milwaukee, Wis., announce the enlargement of their stock of Texrope drives up to 50 horsepower. The present stock includes all of the popular motor speeds and ratings up to 50 horsepower with a large choice of driven speeds.

The Allis-Chalmers company recently issued a bulletin, covering "Large Polyphase Induction Motors," known as Bulletin 1087-E.

Many Mills are Paying Weavers by the Pick



—and This Book Tells How it is done

MANY mills are adopting the Pick Method of Weaver Wage Payment because of its many advantages in accuracy, improved production control, incentive to weavers and superior quality of production.

If you are responsible for efficient production in your mill it will pay you to investigate the Pick Method as against the cut mark or yardage method. Write for our book explaining the Pick Method and Productimeter Pick Counters.

DURANT MFG. COMPANY
668 Buffum Street, Milwaukee, Wis.
Southern Representative: GEO. P. DAVIS
Builders Bldg., Charlotte, N. C.
New England: DURANT MFG. CO., *Leo. A. Nourie, Mgr.*
36 Garnet St., Providence, R. I.

GARLAND

IF YOU ARE NOT QUITE SATISFIED NOW

Try a GARLAND Standard Grade LOOM HARNESS

No better looking, better weaving or better wearing loom harnesses can be made than those we are turning out. The best materials, great care in manufacturing and rigid inspection from the knitting to the finished harness are bound to produce harnesses of superior quality.

GARLAND MFG. CO.
SACO, MAINE

WILSON BROTHERS
BOBBIN CO LTD

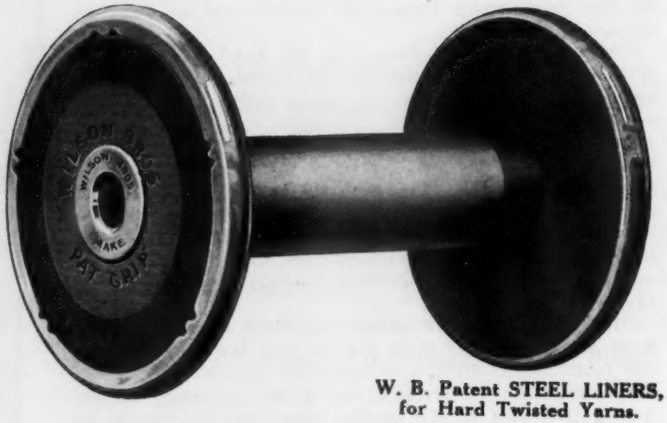
BOBBINS & SHUTTLES

W. B. Pat. "GRIP" SHIELD.
Absolutely Secure.

TRADE MARK WB

W. B. HAND-THREADING SHUTTLE

**CARDROOM TUBES,
RING BOBBINS,
WINDING BOBBINS,
PIRNS, &c., &c.**



W. B. Patent STEEL LINERS,
for Hard Twisted Yarns.

Largest Makers in the World.

WILSON BROS. BOBBIN CO., LTD.,

Telegrams: "NUGGET, LIVERPOOL."
Codes: A B C, A1, & Marconi.

GARSTON,
LIVERPOOL.

—Agents **LEIGH & BUTLER,** *Boston, Mass., U. S. A.*

Weaving Discussion at Spartanburg.

(*Continued from page* 496.)

a filling sateen is four down and one up, and a warp sateen is four up and one down, which throws the warp on the face. It is the identical same thing in a twill, whatever you are weaving for must go on the face.

"The roll of the warp by the shuttle," continued Mr. Williams, "will change the twill. If you have two-thirds of it down and one up will you not get the same as with two-thirds up. In regard to Mr. Wall's question, as to the difference between 1, 2, 3, and 3, 2, 1, there is a difference. If you run the harness 1, 2, 3, if you break from the back to the front, you will have a slack, and if you run 3, 2, 1, your slack always is going with the weave."

Mr. McAbee asked Mr. Williams to explain the construction of a piece of goods out of 30s warp and 8s filling, which was napped on the filling. Mr. Williams explained that this is what is called a twill-back flannel.

Continuing his discussion, Mr. Williams referred to the various cams made by his company, and explained that "a cam made for four down and one up is a filling sateen cam. When the cloth is woven with the face down your filling is nearer to the front. It throws the filling to the front and usually also the construction is entirely different, and you will have far more picks than warp threads to the inch. A filling sateen, for example, would be 60x110, which throws the filling to the face; a warp sateen would be 96x52, for example, that throws the warp to the face. But it is customary to run a filling sateen four down and one up because it gives a better feeling piece of goods.

"Four up and one down is the standard warp sateen cam, and that gives a dwell of four picks. Some men run the warp sateen four down and one up, but it doesn't make as good a sateen as it does to run it four up and one down. You cannot turn it face down and get the same effect."

In connection with the discussion as to which puts the "face" on a twill, Mr. Williams brought out the point that on a three-harness denim, which contains a blue warp and a white filling—with the warp on the front and the filling on the back—this is known in the trade as a *white-back denim.*

The last question of the morning session was started by the question, "Which will give the best face on twills: a heavily sized yarn or a lightly-sized yarn?" It was agreed more or less unanimously that this was entirely a matter dependent upon the requirements of the customer. Mr. Black and others stressed the fact that ordinarily sizing was applied for the purpose of aiding the running of the warps in weaving; but on the other hand, there could be situations where the customer would demand an especially heavy size—as in the case of getting a "boardy" feel on duck, and that it was not a situation of using size to "load" goods, or to replace cotton with size, but a matter of suiting the individual customers' requirements.

ATLANTA SHEET METAL WORKS
Atlanta, Georgia
Sheet Metal Products for Industrial Plants

ATLANTA STOCK

STEEL SHEETS
Blue Annealed
Black and Galvanized
No. 10 Ga. to No. 28 Ga.

BRASS SHEETS
No. 10 Ga. to No. 32 Ga.

COPPER SHEETS
10 oz. to 48 oz.

ZINC SHEETS
No. 9 and No. 11 Ga.
36″ x 84″. Also 20″ rolls.

ALUMINUM SHEETS
No. 16 Ga. to No. 28 Ga.

Galvanized and Tin Roofing

Above in standard stock sizes or cut and formed to order

ATLANTA SHEET METAL WKS.
ATLANTA
"SHEET METAL PRODUCTS FOR INDUSTRIAL PLANTS"

WASHBURN

WOOD TOP ROLLS

for efficient spinning

Washburn Wood Top Rolls require no change to cap bars or saddles. Easy to install and need no resetting for changes in staple. No weighting is required. Yarn runs with a reduced end breakage and increase in tensile strength. The yarn, either on long or standard draft is better.

To mill executives we offer to prove the value of Washburn Wood Top Rolls by data collected on unbiased tests in widely separated mills. The evidence is conclusive and interesting. Write for it.

WASHBURN
IF IT'S ROLLS, WE MAKE THEM

224-234 No. WATER ST., NEW BEDFORD, MASS.

WASHBURN HI-SPEED BEAM

You are not getting full benefit of high-speed warping unless you are equipped with the new Washburn Hi-Speed Beams. Will run without damage to beam or warp at record speeds. Absolutely balanced and guaranteed to stay. Cannot distort or twist out of shape! Lighter! Stronger! Removable shaft, but with patented head-locking device which cannot loosen—and the price is LOW. Ask about our new, LOWER-PRICED Beam for standard warping.

WASHBURN

224-234 No. WATER STREET
NEW BEDFORD, MASS.

CUTS DOWN YARN WASTAGE

fulfilling a

purpose

A definite purpose is as essential to the lasting success of a manufacturing organization as it is to individual accomplishment.

It has long been the purpose of the Gastonia Brush Company to always strive to build better brushes. These efforts are being rewarded with a steady increase in the use of Gastonia Brushes by the leading textile mills throughout the country.

Gastonia Brush Co.
Gastonia N. C.

COTTON INSTITUTE

Emphasizes Accurate Textile Cost System

More than 20% of All Cotton Textile Spindles in the United States are Operated by Clients Using Our Cost Methods.

We do not experiment in costs at your expense; Our systems have been tried and proven in more than 100 textile mills over a period exceeding sixteen years. The men of our organization bring to your cost problems the value of actual mill experience.

RALPH E. LOPER & CO.
INDUSTRIAL ENGINEERS
Specialists in Textile Cost Methods Over 16 Years
FALL RIVER, MASS. GREENVILLE, S. C.

MICHAEL & BIVENS, INC.

Electrical Engineers and Contractors
Textile and Municipal Plants
Expert Motor and Transformer Rewinding
GASTONIA, N. C.

FERGUSON GEAR CO.

CUT GEARS CHAIN DRIVES
BEVEL SPUR SPIRAL WORM SPROCKETS
RAWHIDE BAKELITE AND HARDENED STEEL PINIONS
Member American Gear Manufacturers Association
GASTONIA, NORTH CAROLINA

Mr. Chapman asked a specific question, in making a 100x60 broadcloth, with 29½s warp, whether it would be better to lighten the warp and use more size. Mr. Lockman brought out that to run a yarn half a number lighter and use more size would give better running work. Mr. Franks said that if it were not possible to lighten the filling, in order to get the weight, then the better plan would be to lighten the warp.

This concluded the morning session, and the usual luncheon was served, in the hotel dining room, with musical entertainment by the "Carolina Humming Birds," a quartet of young men who pleasingly offered some enjoyable vocal work.

Fancy Weaving Discussion Features Afternoon Session

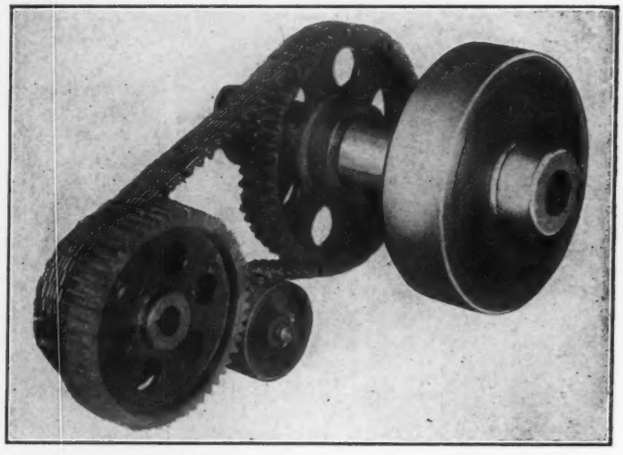
THE major portion of the afternoon session, which was started following several announcements after luncheon, was devoted to subjects of more direct interest to fancy weavers, but many of the topics likewise pertained to plain goods weaving. The first question brought up by the chairman was, "What causes the heddle rods in steel heddle frames to break in the middle?"

E. M. Terryberry, who represented a manufacturer of steel heddles several years ago, and who, he explained, invented the Duplex heddle, volunteered to respond to this question. Mr. Terryberry pointed out that during his service in that field, the troubles involved were not so complicated as they are now in these days of fancy weaves and patterns, but that these difficulties were encountered to a certain extent. He explained that the trouble mentioned was due mainly to the high-sley goods and heavy work, when excessive strain is thrown on the center hooks that hold the center bars. He said that the main difficulty in a case of this kind is usually found to be that only one hook is used on a shaft for, say, a 40-inch loom, or wider, when three hooks to distribute the work of supporting the harness would be much more satisfactory. Heavier pieces of wood also are of assistance, he said, adding that the heddle manufacturers are now taking steps to remedy both of these situations. He urged that in ordering heddles and heddle frames, that the mills pay attention to the specifications and indicate the class of goods and the other details to enable the heddle people to serve them better.

H. E. Littlejohn, of the Steel Heddle Manufacturing Company's Greenville office, concurred in Mr. Terryberry's remarks as to the hooks, telling of one North Carolina mill which had experienced this difficulty, and explaining that it had been due to insufficient support of the heddle rods, and when this was changed, the trouble was eliminated.

J. K. Poole, assistant superintendent, Stonecutter Mills, Spindale, N. C., was asked to discuss this. Mr. Franks asked him if he had ever seen heddles "tied out" with strands of warp, and if so, what he thought caused it. "I think they break, is the reason they tie them up like that," replied Mr. Poole. "I have seen them break when they were not aligned properly, with the improper setting at top and bottom." He also pointed out that continuous wear would cause the hed-

STEWART COMPOUND *for ROVING FRAMES* **WITH CHAIN DRIVE**



Compound Assembled with Chain Drive and Tightener. Below—Unassembled Unit Showing Details of Construction.

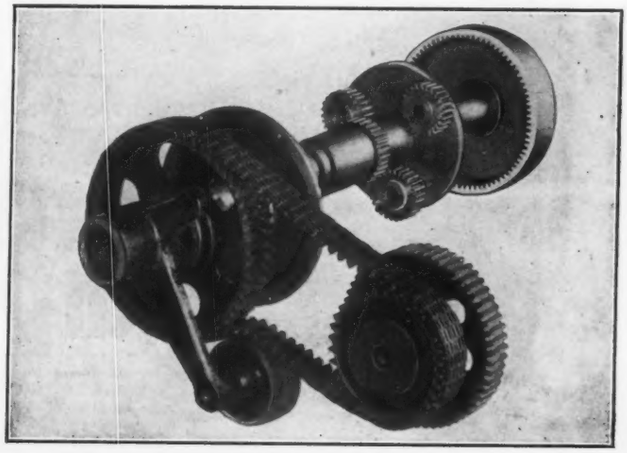
A Generous Offer

So confident are we that the Stewart Compound will win your favor on performance that we make you the following proposition:

Install a unit on a roving frame, and watch its action for six months. If you are not convinced that it reduces the load on the cone belt from 30 to 50 per cent, and saves 10 per cent of power required to drive frame, ship it back to us and NO CHARGES WILL BE MADE.

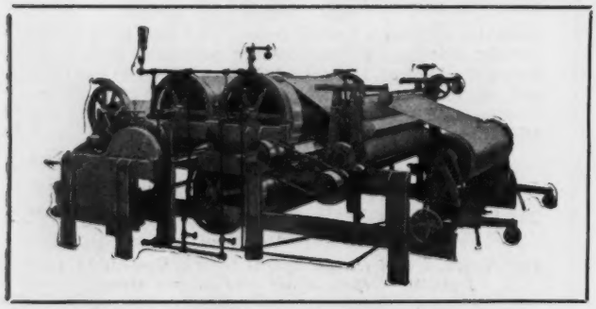
You can't lose on this offer—write us today!

PRECISION GEAR & MACHINE CO., INC.
204 SOUTH AVON ST. GASTONIA, N. C.
Manufacturers of
Cut Gears, Bevel Gears, Spiral Gears, Rawhide Gears, Bakelite Gears, Spur and Worm Gears.



Warren, Knight & Davis, Architects; Chas. M. Allen & Sons, Contrs.
BASIC SLAG
For better Concrete
Sinews of Strength
in the modern skyscraper
Behind the attractive exterior of ornamental face brick and terracotta is a giant Atlas. In most skyscrapers a rugged frame of steel and reinforced
ENSLEY-ALA CITY
BASIC SLAG
concrete that is the very heart of the great structure itself—giving it the strength to sustain the constant, ponderous weight of its multiplied floors—and rendering it safe against the ravages of fire.
The Watts Building is Birmingham's newest office building—located at 20th street and 3rd avenue. Slag concrete encases the steel frame and was used in all floor and roof slabs.
BIRMINGHAM SLAG CO.
Slag Headquarters for the South
ATLANTA BIRMINGHAM JACKSONVILLE
INDIANAPOLIS MONTGOMERY OCALA FLA

World Leadership



Note three roller quetsch which is absolutely necessary for the proper sizing of all brands and deniers, whether dyed or natural.

THERE are no frills in the Johnson Improved Warp Sizer, to which Charles B. Johnson has devoted all his specialized knowledge. But for *sheer effectiveness and simplicity of operation* it is the acknowledged world leader.

That is why Johnson machines are found wherever rayon, celanese, or silk has to be sized quickly, efficiently and safely.

Whether you go "down East" or "down South," to England or to that birthplace of artificial silk, Continental Europe, you will find an ever increasing number of Johnson Warp Sizers at work—giving an honest dollar's worth—and winning world leadership doing it.

Send for circular

Charles B. Johnson

10 Ramapo Ave., Paterson, N. J.

The Johnson improved Warp-Sizer

British Representative:
TEXTILE ACCESSORIES, LIMITED
Manchester, England.

Continental European Representatives:
SOCIETE INOXI
Lyons, France

New England Representative:
JOSEPH BARNES
New Bedford, Mass.

Southern Representatives:
G. G. SLAUGHTER
Charlotte, N. C.

dles to wear out eventually, and that excessive vibration will also contribute to a condition of this kind. He added that a lack of proper support will also cause this trouble.

In discussing the subject further, Mr. Franks distinctly emphasized that in bringing up the question it was in no way a reflection upon the product of the heddle manufacturers—that he believed they are doing a good job of it, indicating that much of the cause for such trouble as was being discussed was due to improper practice and a lack of understanding at the mill. On the harness frame with only one hook in the middle, he continued, many men after the frame is unhooked, instead of hooking it back after tying in a warp, would run it up tight, which would put excessive strain on the frame at that point, and prevent the heddles from working "free and easy". He further stated that he did not believe mills encountered nearly as much trouble with steel heddles as they did in the earlier days of their use.

Slashing Fine Yarn Warps.

Mr. Franks next wanted to know the proper speed for a slasher in sizing a warp of 7,000 ends of 70s single yarn. Mr. Poole in answering pointed out that so much depended upon the kind of steam, and other conditions—that he would try to size it so as to leave a reasonable amount of moisture in the yarn. Assuming all conditions of steam, etc., to be correct, Mr. Lawrence of Drayton Mills said he would run the slasher 25 yards a minute, while B. R. Burnham, superintendent, Mills Mill, Woodruff, S. C., recommended 20 yards a minute. Mr. Hanna, of the Cramerton Mills, Cramerton, N. C., said he runs his so as to get a 64 yard warp off in four minutes. At this point Mr. Black brought out that with carrier rolls, it is possible to size 9s yarn at 150 feet per minute.

"Does it pay to run a slasher on fine work fast?" interrogated Mr. Franks, answering it by saying that in his opinion it is best to run it with as little steam as possible to dry the yarn enough to prevent mildew. "A lot of people dry it more than others, and they claim that they put the moisture back when it gets to the weave room, but I do not believe it is possible, because when you take it out you take out that regain, and I do not think you can get it back in, and leave the yarn in the same condition as before you dried it out. I think you should run with as little steam as possible, and run it slow; especially on fine yarns, because in the split rods you will have more breaks if you try to run it too fast, and also trouble on the beams at the back. It's just like men and women, you can handle men most any old way, but with women you have to be more careful—because they are *finer*."

Weaving Rayon on Cotton Looms.

At this point an inquiry concerning the running of rayon voile on an old-model box loom was made. The yarn was 75 denier, warp and filling, 55 turns, making a 60x56 all-rayon georgette, on a 4x1 box 40-inch loom built for cotton. Mr. Lawrence said he knew of two mills that are doing it but he did not know the details.

Mr. Franks said:

"I do not believe he can do it on the old-style box

DRYING
Stock, Yarn, Piece Goods

"HURRICANE" MASTER STOCK DRYER—an improved machine for drying large quantities of cotton stock quickly with a minimum of heat and power. Automatic Feeds. Conveying Aprons any width.

YARN DRYERS—The advantages of "HURRICANE" Yarn Dryers are well expressed in the following statement made by one of the country's leading dyers and finishers:

"We feel that in labor and steam, we will save the price of this machine in a year, besides being able to deliver cotton yarn that is superior in softness, superior in feel and dried more evenly.

Automatic Yarn Drying and Conditioning Machines are made for large capacities, and Truck Dryers for smaller quantities.

LOOP DRYERS—are highly efficient for all piece goods.

The Philadelphia Drying Machinery Co.
3351 Stokley St., Philadelphia, Pa.
New England Office: 53 State St., Boston, Mass.

Southern Agents: Carolina Specialty Co. Charlotte, N. C.

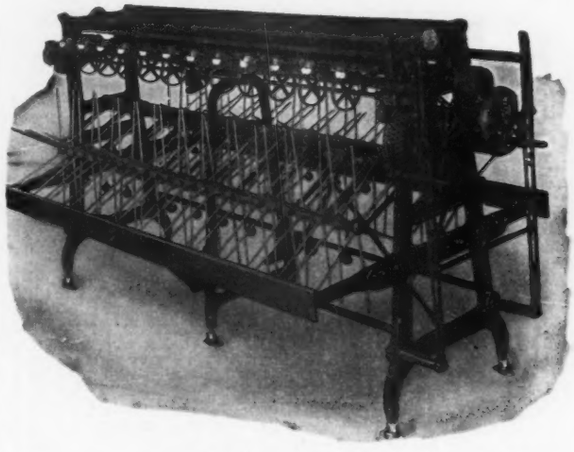
HURRICANE *Ideal Drying Every Day* REG. U.S. PAT. OFF.

Canadian Agent: C. M. Cudlip, Hamilton, Ont.

130

An Ideal Winder
for Rayon
also Silk and Fine Mercerized Yarns

Steel frame construction and patented rigid traverse motion.
Write for circular No. 10.

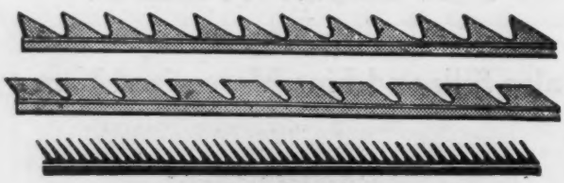


Also warpers and other special textile machines.

THE SIPP MACHINE COMPANY
PATERSON, N. J.
REPRESENTATIVES
South Gibbons G. Slaughter, Charlotte, N. C.
Great Britain and Europe, Textile Accessories, Ltd., Manchester, England

ALL STEEL
ECONOMY
FIRE PROOF
BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. C, ANN ARBOR, MICH., U. S. A.

PLATT'S
METALLIC CARD CLOTHING AND SERRATED WIRES
—Patented in all important Countries—
... For ...
WORSTED - COTTON - WOOLEN AND SILK CARDING ENGINES
Write for particulars of our new metallic card clothing *doing away with grinding and stripping*, giving a greater output, a stronger thread, and more regularity, etc. It pays for itself in a very short time.
We manufacture also all types of wires for Taker-in, Licker-in, Breasts, and Morel Bollers, etc.



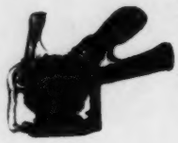
PLATT FRERES,
BOULEVARD DE LYON, ROUBAIX, FRANCE
Platt's Metallic Card Clothing Co.
P. O. BOX 407, LEXINGTON, N. C.
J. W. & H. Platt, Byron Works, Bouverie Rd., Harrow, England
Other Continental Branches in ROUEN, GHENT, BALE, MULHOUSE BARCELONA, TORINO, Etc.

COSTS IN TEXTILE MILLS
(SUPPLIES)
A leakage at the source of supply is an unnecessary burden upon all your effort to improve processes.
With the ticket printing register you can check closely on all materials issued to each section of the mill, in order to:
1. Control the quantity of supplies used to prevent their being wasted.
2. Determine quantity of each item necessary to keep on hand, in order to purchase in bulk.
The ticket printing register aso provides a method for keeping track of quantity and distribution of all supplies, raw materials, and finished goods.

OHMER
REG. U.S. PAT. OFF. AND OTHER COUNTRIES
FARE REGISTER COMPANY
P. O. BOX 1131, ATLANTA, GA.

AN ORGANIZATION OF
TEXTILE ACCOUNTANTS
FAMILIAR WITH ALL TYPES OF MILLS
TOGETHER WITH
INDUSTRIAL ENGINEERS
OFFER A SERVICE TO THE MILL OPERATOR UNUSUAL IN ITS SCOPE AND PROVED IN ITS RESULTS.
ARTHUR F. MORTON & CO.
ACCOUNTANTS AND ENGINEERS
Specialists in TEXTILES in all branches
ATLANTA, BIRMINGHAM, CHARLOTTE, NEW YORK, CHICAGO, PHILADELPHIA, TRENTON, ALLENTOWN, WASHINGTON
CORRESPONDENTS IN PRINCIPAL CITIES

Bradley Stencil Machine
The Bradley Stencil Machine makes stencils in half a minute at reduced cost of 1-10c each. Write for catalogue and price list.
In universal use by thousands of manufacturers and shippers.



Oil Paper, Stencil Paper and Inks. Bradley Ball Stencil Pot uses Liquid Ink for marking and stenciling. Price 60c or $6.00 per doz. Manufacturers of Oil Stencil Papers.
Write for Prices and Samples
A. J. BRADLEY MFG. CO.
99 Beekman Street NEW YORK

loom of the Providence make as good as he could on the Worcester type of loom, which is a deeper loom with a longer throw. It might be done on a cam loom, but I doubt it because you have a shed that is fixed—of course you should run slack straps, but I do not believe it would be satisfactory. But on the Worcester type of loom, you can move the dobby, and close the shed up and set the harness so as the shuttle can be bigger than on a loom that is not as deep and doesn't have that sweep. It is farther back from the whip roll to the breast beam on the Worcester loom, and you can go back there with your shed.

"However, you cannot run that rayon voile and make a cotton warp out of it, and make it run. You cannot run it with the same temple, you cannot run it without velvet on the lay, or without a good reed. There are many things about fancy weaving that don't apply on cotton work. You may say there is no such word as 'can't', but when you get into rayon weaving you will find there are a lot of things impossible that are common enough in cotton weaving."

The next question asked was with regard to whether it is better to make a long chain or a short one on fancy work. It was the consensus of opinion that short chains are much better, if it is possible to run them, but that in many cases it is absolutely necessary to run long chains. Mr. Poole said he had some, even with multipliers, that run up as high as 350 bars. Mr. Franks expressed the opinion that there are people who run more than is necessary—for example, they will make two repeats when one would answer every purpose.

Loom Stops per Hour on Multiple System.

At this point Mr. Wall repeated a question which had been continued from the morning session, "How many looms can a weaver start up per hour on the multiple system, provided he does nothing but weave, and provided only one end at a time breaks on a loom?"

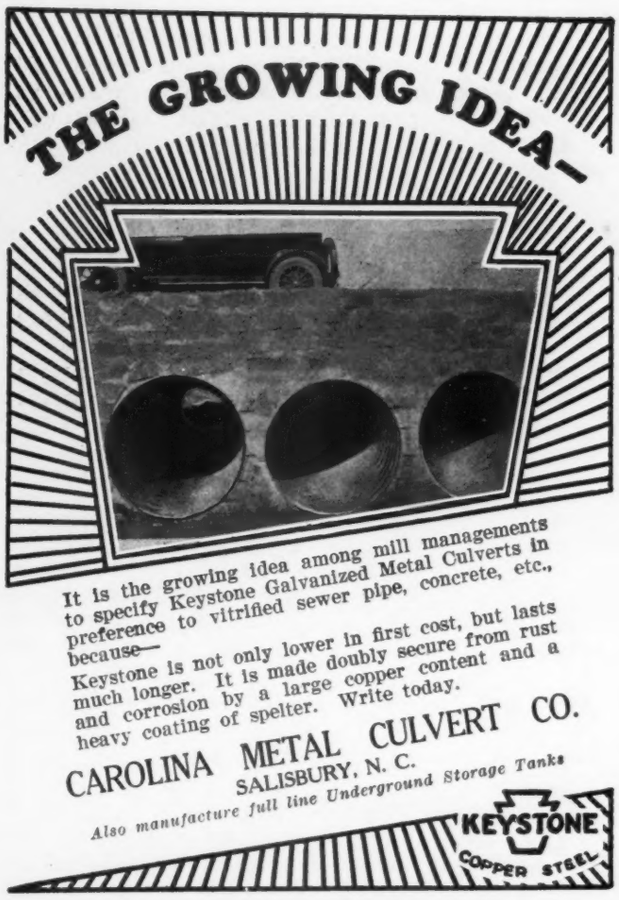
W. F. Howard, superintendent, Pacific Mills, Lyman, S. C., replied that it is not a question of how many looms a weaver can take care of, but how many loom stops he can handle per day, and that at Lyman they use a basis of 350 loom stops per day to the weaver, which means 35 to the hour, in a ten-hour day.

Condensing Harness in Fancy Weaving.

In fancy weaving, Mr. Franks wanted some discussion as to the advisability of condensing the harness as much as possible. "Is it always best to use just as few harness as possible to make the goods you want?"

"I don't think it is a good idea to run the absolute minimum every time," declared Mr. Lawrence. "For a fancy pattern it would be much better to run ten harness with a straight draw than to run four harness and have a crooked drawing-in draft. I would rather fool with the extra harness with a straight draw than to have a smaller number of harness with a more complicated draw."

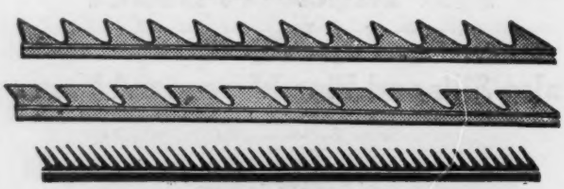
Mr. Burnham pointed out that the weave has a good deal to do with it, and declared there is a tendency at the present on the part of many mills to use more harness than is necessary.


THE GROWING IDEA—
It is the growing idea among mill managements to specify Keystone Galvanized Metal Culverts in preference to vitrified sewer pipe, concrete, etc., because—
Keystone is not only lower in first cost, but lasts much longer. It is made doubly secure from rust and corrosion by a large copper content and a heavy coating of spelter. Write today.
CAROLINA METAL CULVERT CO.
SALISBURY, N. C.
Also manufacture full line Underground Storage Tanks
KEYSTONE
COPPER STEEL

Economy of Efficient Driving Tapes
Only efficient tapes can create economy —tapes that possess those inherent qualities of strength and long life. Barber Spinning and Twisting Tapes are the most economical on the market—evidenced by the number and character of the mills using them exclusively.
BARBER MANUFACTURING CO.
Charlotte, N. C.
World leaders in the production of spinning and twisting tapes for all kinds of cotton machinery.
BARBER
SPINNING & TWISTING TAPES

ALL STEEL
ECONOMY
FIRE PROOF
BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. C, ANN ARBOR, MICH., U. S. A.

PLATT'S
METALLIC CARD CLOTHING AND SERRATED WIRES
—Patented in all important Countries—
... For ...
WORSTED - COTTON - WOOLEN AND SILK CARDING ENGINES
Write for particulars of our new metallic card clothing *doing away with grinding and stripping*, giving a greater output, a stronger thread, and more regularity, etc. It pays for itself in a very short time.
We manufacture also all types of wires for Taker-in, Licker-in, Breasts, and Morel Boilers, etc.



PLATT FRERES,
BOULEVARD DE LYON, ROUBAIX, FRANCE
Platt's Metallic Card Clothing Co.
P. O. BOX 407, LEXINGTON, N. C.
J. W. & H. Platt, Byron Works, Bouverie Rd., Harrow, England
Other Continental Branches in ROUEN, GHENT, BALE, MULHOUSE BARCELONA, TORINO, Etc.

COSTS IN TEXTILE MILLS
(SUPPLIES)
A leakage at the source of supply is an unnecessary burden upon all your effort to improve processes.
With the ticket printing register you can check closely on all materials issued to each section of the mill, in order to:
1. Control the quantity of supplies used to prevent their being wasted.
2. Determine quantity of each item necessary to keep on hand, in order to purchase in bulk.
The ticket printing register aso provides a method for keeping track of quantity and distribution of all supplies, raw materials, and finished goods.

REG. U.S. PAT. OFF. AND OTHER COUNTRIES
FARE REGISTER COMPANY
P. O. BOX 1131, ATLANTA, GA.

AN ORGANIZATION OF
TEXTILE ACCOUNTANTS
FAMILIAR WITH ALL TYPES OF MILLS TOGETHER WITH
INDUSTRIAL ENGINEERS
OFFER A SERVICE TO THE MILL OPERATOR UNUSUAL IN ITS SCOPE AND PROVED IN ITS RESULTS.
ARTHUR F. MORTON & CO.
ACCOUNTANTS AND ENGINEERS
Specialists in TEXTILES in all branches
ATLANTA, BIRMINGHAM, CHARLOTTE, NEW YORK, CHICAGO, PHILADELPHIA, TRENTON, ALLENTOWN, WASHINGTON
CORRESPONDENTS IN PRINCIPAL CITIES

Bradley Stencil Machine
The Bradley Stencil Machine makes stencils in half a minute at reduced cost of 1-10c each. Write for catalogue and price list.
In universal use by thousands of manufacturers and shippers.

Oil Paper, Stencil Paper and Inks. Bradley Ball Stencil Pot uses Liquid Ink for marking and stenciling. Price 60c or $6.00 per doz. Manufacturers of Oil Stencil Papers.
Write for Prices and Samples
A. J. BRADLEY MFG. CO.
99 Beekman Street NEW YORK

loom of the Providence make as good as he could on the Worcester type of loom, which is a deeper loom with a longer throw. It might be done on a cam loom, but I doubt it because you have a shed that is fixed—of course you should run slack straps, but I do not believe it would be satisfactory. But on the Worcester type of loom, you can move the dobby, and close the shed up and set the harness so as the shuttle can be bigger than on a loom that is not as deep and doesn't have that sweep. It is farther back from the whip roll to the breast beam on the Worcester loom, and you can go back there with your shed.

"However, you cannot run that rayon voile and make a cotton warp out of it, and make it run. You cannot run it with the same temple, you cannot run it without velvet on the lay, or without a good reed. There are many things about fancy weaving that don't apply on cotton work. You may say there is no such word as 'can't', but when you get into rayon weaving you will find there are a lot of things impossible that are common enough in cotton weaving."

The next question asked was with regard to whether it is better to make a long chain or a short one on fancy work. It was the consensus of opinion that short chains are much better, if it is possible to run them, but that in many cases it is absolutely necessary to run long chains. Mr. Poole said he had some, even with multipliers, that run up as high as 350 bars. Mr. Franks expressed the opinion that there are people who run more than is necessary—for example, they will make two repeats when one would answer every purpose.

Loom Stops per Hour on Multiple System.

At this point Mr. Wall repeated a question which had been continued from the morning session, "How many looms can a weaver start up per hour on the multiple system, provided he does nothing but weave, and provided only one end at a time breaks on a loom?"

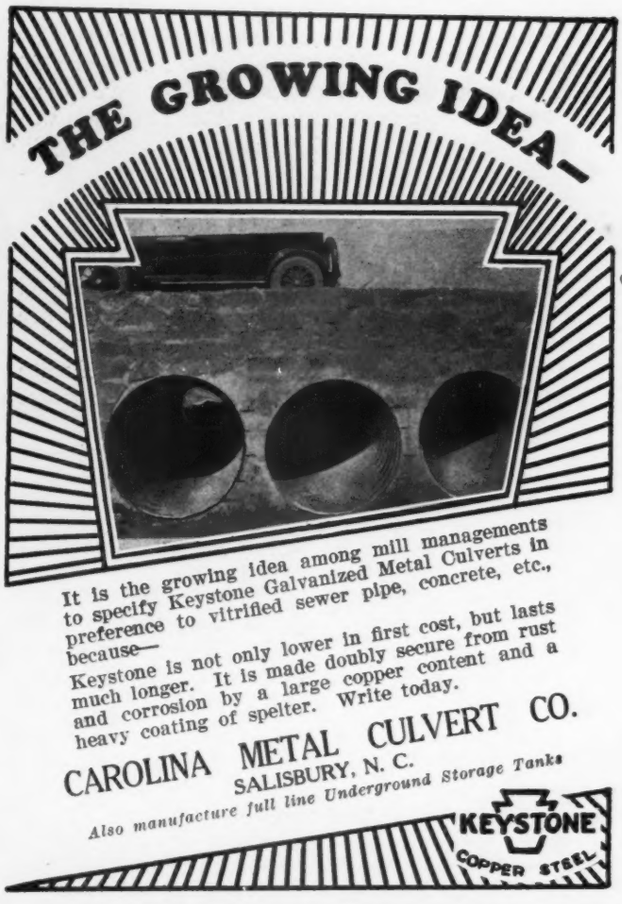
W. F. Howard, superintendent, Pacific Mills, Lyman, S. C., replied that it is not a question of how many looms a weaver can take care of, but how many loom stops he can handle per day, and that at Lyman they use a basis of 350 loom stops per day to the weaver, which means 35 to the hour, in a ten-hour day.

Condensing Harness in Fancy Weaving.

In fancy weaving, Mr. Franks wanted some discussion as to the advisability of condensing the harness as much as possible. "Is it always best to use just as few harness as possible to make the goods you want?"

"I don't think it is a good idea to run the absolute minimum every time," declared Mr. Lawrence. "For a fancy pattern it would be much better to run ten harness with a straight draw than to run four harness and have a crooked drawing-in draft. I would rather fool with the extra harness with a straight draw than to have a smaller number of harness with a more complicated draw."

Mr. Burnham pointed out that the weave has a good deal to do with it, and declared there is a tendency at the present on the part of many mills to use more harness than is necessary.


THE GROWING IDEA—
It is the growing idea among mill managements to specify Keystone Galvanized Metal Culverts in preference to vitrified sewer pipe, concrete, etc., because—
Keystone is not only lower in first cost, but lasts much longer. It is made doubly secure from rust and corrosion by a large copper content and a heavy coating of spelter. Write today.
CAROLINA METAL CULVERT CO.
SALISBURY, N. C.
Also manufacture full line Underground Storage Tanks
KEYSTONE
COPPER STEEL

Economy of
Efficient Driving Tapes
Only efficient tapes can create economy—tapes that possess those inherent qualities of strength and long life. Barber Spinning and Twisting Tapes are the most economical on the market—evidenced by the number and character of the mills using them exclusively.
BARBER MANUFACTURING CO.
Charlotte, N. C.
World leaders in the production of spinning and twisting tapes for all kinds of cotton machinery.
BARBER
SPINNING & TWISTING TAPES

"It is the best idea to get them on as few harness as possible without crowding," declared Mr. Franks. "You can make a Bedford cord, for example, on 16 harness, or make it on 6 harness, but it doesn't run as good on the 16, or you can make it on 12, and it will run better than on 16 or 6 harness. It doesn't pay to crowd them and it doesn't pay to go to the other extreme."

Preventing Rust from Iron Cloth Rolls.

The next question asked how to prevent rust on cloth from the iron cloth rolls on which the goods are taken from the loom to the cloth room. It was explained that, with the temperature in the cloth room some 10 to 15 degrees cooler than that in the weave room, the rolls "sweat" and cause rust spots on the goods. C. L. Chandler, superintendent, Gaffney Mfg. Co., Gaffney, S. C., who submitted the question, explained that this costs him a great deal of trouble and worry, and that he had done any number of things to prevent it, without success.

A number of suggestions were made, upon the basis of different mills' experience, including the painting of the rolls with aluminum paint, spraying Duco on the rolls, using paper cloth rolls or 1¼-inch galvanized pipe, of the right length, through which the rolls are slipped, shellacking the iron rolls, etc., etc. Mr. Franks suggested as the best thing he could offer was the covering of the rolls, spirally or otherwise, with regular roller flannel, which would eliminate the trouble, although it would of course require the carrying of a larger number of rolls, because the rolls could not be slipped out of the cloth when taken to the cloth room.

Weaver's Knots Decrease Loom Stoppage.

There was next a brief discussion as to whether the weaver's knotter aids in decreasing loom stoppage. Two or three indicated that its use did improve the running of the weaving, but pointed out at the same time that this type of knotter requires careful and close attention to keep in adjustment.

Using Warp Tying-In Hands.

"Is there anything to be gained by putting on a man to tie on warps?"* was the next question.

"If you could cut off two loom fixers it would be an advantage," declared one man.

"There is some work where it would be an advantage," said Mr. Lawrence. He added that on some complicated pattern work it would require almost a day to tie in the warp.

"In some cases it is necessary and in some cases it isn't," declared Mr. Franks. "And in some other cases they just think it's necessary. I have known cases where because you furnished them with a man they would actually fool around and not put the warps on in order to get somebody to do it for them. In a fancy mill it would be difficult to run without them."

"I have tried warp hands, and do not approve of them on some work," said Mr. Holcombe. "On coarse work it looks like it was necessary, but I would rather use a man on a fewer number of looms, and let him tie in, because a warp hand must be a good loom fixer anyhow. Setting the harness, etc., is among the most important parts about getting the warp ready for weaving, anyhow.

Number of Looms to Section Man.

"How many looms do you have to the section man, on two- and three-harness work, from 10s to 30s?" was the final question, which was asked by Mr. Hardeman. He said he uses 18-, 20-, and 22-inch beam heads.

Mr. Chandler reported that his section men handle 96 looms on 14s. On 10s, at Pacolet, Mr. Lancaster reported 75 to 80 looms to the man. F. D. Lockman said he thinks they keep up with 100 looms per section man on 30s, and W. W. Cobb reported 110 on 30s at Cateechee. Mr. Shippey said on narrow looms, with steel harness, running 166 picks a minute, 64x60 construction, his men look after 100 looms each. T. C. Drew, Jr., superintendent, Clifton Mfg. Co., Clifton, S. C., reported 104 looms to each section man on 30s yarn, looms running 170 picks a minute. Another man, on broadcloth constructions, reported 68 looms. He added that when a mill is on double shift the section man cannot look after as many looms. Mr. McAbee said he knew of a mill where one-fourth of the seconds were caused absolutely by the loom fixers, making overshots because the harness was set either too high or too low. This concluded the discussion. Earlier in the day, F. E. Norcross, of Standard Looms, Inc., had invited the members to visit the new loom manufacturing plant of that company in Spartanburg, but due to the inclement weather, it was moved to postpone the visit until another time.

Hill Company Appoints Southern Representative.

The Hill Clutch Machine and Foundry Co., Cleveland, Ohio, manufacturers of power transmission machinery, speed transformers, etc., have appointed C. R. McGahey as sales engineer in charge of the southern territory, including the states of Virginia, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi and Louisiana.

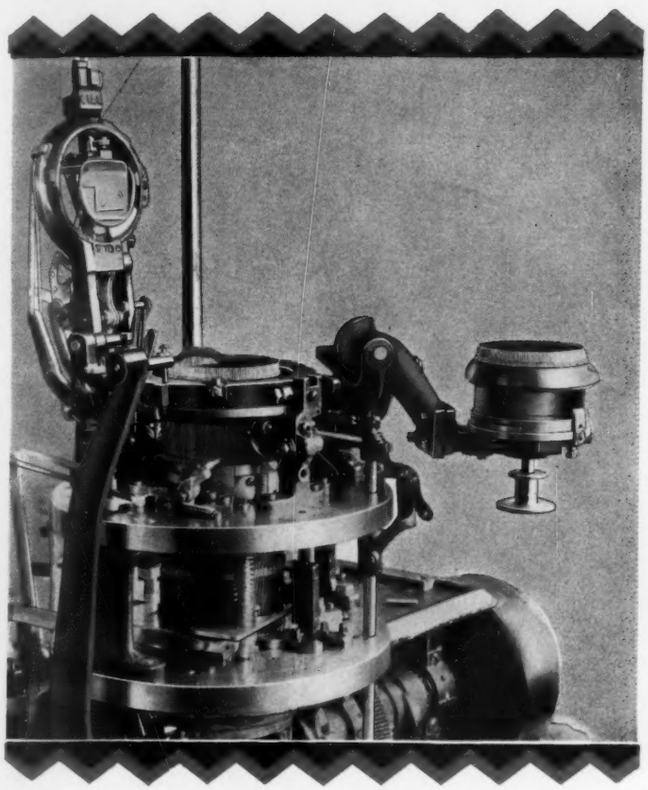
Booklet on Overhauling Service.

Dixie Spindle & Flyer Co., Charlotte, N. C., have issued a booklet describing the Guillet overhauling system for spinning and card room machinery. In the booklet, A. M. Guillet explains that within recent years he devised certain standard tools and scientific appliances for the proper erecting and overhauling of this equipment, and the booklet describes these devices, including the wire lining devices, the adjustable level, adjustable plugs, spindle straightening device, spindle pointing device, roll stand reamer, roll spread, etc., and outlines the Guillet method of overhauling. The booklet also discusses the company's service with regard to reclaiming rolls, spindles, flyers, pressers, etc.

New Vat Brown by du Pont.

Ponsol Brown AG Double Paste is a vat color yielding neutral shades of brown which are exceptionally fast to all ordinary destructive agents, states the E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware. This brown is a cold dyeing vat color and should be used in combination with other cold dyeing vat colors. The company states that due to the low temperature at which this dye can be applied, and the relatively small amount of caustic soda required, that it is suitable for the dyeing of silk and rayon.

Knitting Section



The Semi-automatic TRANSFER

. . . an important improvement for MANUFACTURERS of TRANSFERRED HALF-HOSE

THIS device has a direct economical bearing on production. Operators of only ordinary skill accomplish *perfect transfers*. And production is increased over 20%.

There are further advantages. These perfect transfers are made without damage to the points, needles or sinkers, which eliminates defective work arising from damaged parts. The expense of replacing such parts, including that of mechanics' time, is obviated and thus constitutes an additional saving.

Full information relative to the new device will be gladly furnished.

Established 1865

SCOTT & WILLIAMS

Incorporated

366 Broadway New York, N. Y.

The DEBUTANTE likes beautifully finished RAYON GARMENTS

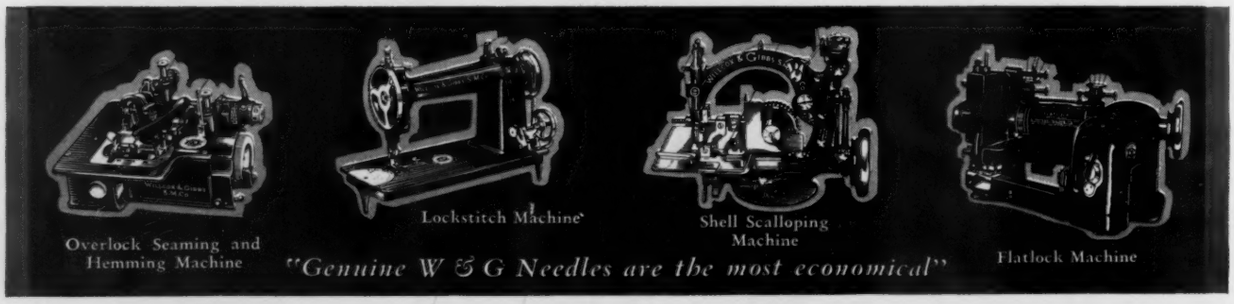
YOUNG women of today are critical of the seaming and stitching of Rayon undergarments. It pays to please them, for often their preference establishes the fashion. It is good merchandising practice to supply the universal demand for this beautiful finish. Particularly as it does not add to production costs. That is, if you use Willcox and Gibbs Machines.

Buyers soon learn that fine finish is characteristic of your production (either men's or women's) when you use these well-built, correctly designed machines. There is one for every Rayon seaming and stitching operation. Each is *standard* for its particular work.

Write our Home Office for samples made on these machines, or submit your own fabrics for sample purposes.

WILLCOX & GIBBS SEWING MACHINE CO.
HOME OFFICE: 658 Broadway, New York, N. Y., U. S. A.

Sole United States and Canadian agents for Cornely and Uniart Embroidery machines.


Overlock Seaming and Hemming Machine
Lockstitch Machine
Shell Scalloping Machine
Flatlock Machine
"Genuine W & G Needles are the most economical"

Problems *in* Manufacturing *FULL-FASHIONED HOSIERY*

By C. H. Baxter

Article 4.---Sinkers and Needle Lines, Selvages and Plaiting

IN my previous article on full-fashioned hosiery manufacturing problems in the February issue, I tried to show how to adjust or fix certain working parts that do cause trouble. To many of the readers, especially those who are erectors of knitting machines, some of my methods might appear crude and inaccurate and I will have to agree that they are crude and sometimes not as accurate as when using gauges. However, when a fixer has charge of a large number of machines that must always be kept in operation, it is necessary at times, to make quick adjustments; otherwise a fixer would never be finished and the result would be many machines stopped because of breakdowns. Erecting knitting machines and fixing knitting machines that are in operation are two different things. In the erection of a knitting machine the erector must be accurate in everything he does and all parts must be set according to gauges; otherwise the knitting machine will cause trouble right from the start. In fixing knitting machines that are in operation, the problem is different as one only fixes or adjusts certain parts to rectify a certain trouble that arises.

IN this article Mr. Baxter continues his discussion of full-fashioned hosiery manufacturing problems by covering in detail the causes of sinker and needle lines, selvages, and plaiting.

His next discussion will cover narrowing troubles, cuts and holes, and the setting of draw cams. We invite suggestions from readers as to possible subjects pertaining to manufacturing problems which Mr. Baxter might discuss in future articles. Likewise, we, and the author, would appreciate any comments from readers concerning the material which he is now presenting along this line.—The Editor.

In the fixing of knitting machines, I have always worked on the principle of getting a machine that is broken down or is not working properly started as soon as possible and I cannot always do things according to gauges and standards set by the manufacturers of knitting machines.

Sinker Lines.

In my February article I wrote about how to improve the fabric and how to make adjustments to secure a good fabric. In that article I took up the major problems, but sometimes a minor problem arises that will make poor fabric and in this article I will try to show the reader some of the causes and how to rectify them.

One of the things in full-fashioned hosiery that will spoil the appearance of a fine piece of fabric is either sinker lines or needle lines. Many times one will look at a pair of silk stockings and find that the fabric is beautiful but the appearance is spoiled by having several loose or tight lines in it, caused by either sinkers or needles. A common cause for lines in hosiery is worn striking jacks, especially after a machine has been in operation for several years. A fault that will soon ruin a knitting machine that has been in operation several years, is that new striking jacks are always used for replacement on old machines. To illustrate this, let us say that a machine five years old has had a head smash and a dozen or more striking jacks must be replaced in this head. If new striking jacks are used they will be longer at the nose than the old ones, which are worn and therefore the sinker will be pushed out further and will make a looser stitch than the old striking jacks will make.

The remedy for this is to replace the striking jacks with worn striking jacks instead of new ones. The best way to have old striking jacks on hand at all times, is to take out a striking jack head from one machine and replace the entire head with new striking jacks. The old striking jacks removed, one can keep on hand to to use as replacement jacks on machines where the striking jacks are worn somewhat and this will prevent so-called sinker lines.

Sinkers flying back is another cause for sinker lines. This may be caused by too much play in the sinker head or may be caused by the striking jacks lacking grease to hold them from flying back. Sinkers that have been worn at the butt end where the striking jack strikes the sinker, will also cause sinker lines. In this case it is always best to have old sinkers on hand as well as striking jacks, as new sinkers will also cause lines. Taking out an entire head of sinkers and replacing the head with new sinkers on hand for replacement and doing this especially on old machines, will prevent many sinker lines.

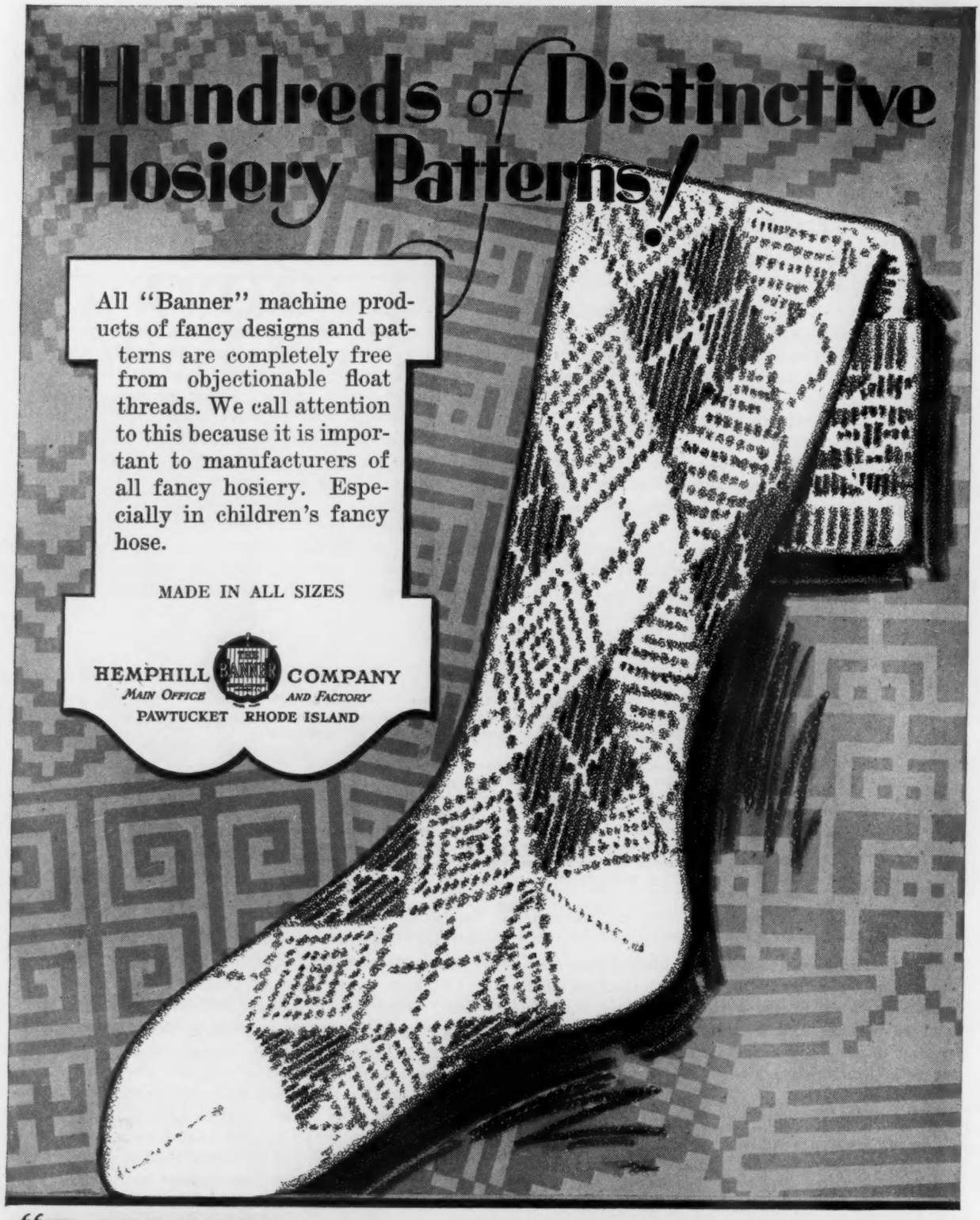
Another cause for sinker lines is that the slots in the sinker heads have become worn, resulting in too much up-and-down play. All knitting machines have an adjustment screw on each sinker head and all that is necessary is to tighten up this screw and this will take up the play in the sinker head. If worn too much, then it is necessary to take the sinker head apart and

Hundreds of Distinctive Hosiery Patterns!

All "Banner" machine products of fancy designs and patterns are completely free from objectionable float threads. We call attention to this because it is important to manufacturers of all fancy hosiery. Especially in children's fancy hose.

MADE IN ALL SIZES

HEMPHILL COMPANY
Main Office and Factory
PAWTUCKET RHODE ISLAND



"BANNER" Jacquard Machine Patterns

New York Sales and Show Rooms
93 Worth Street, New York

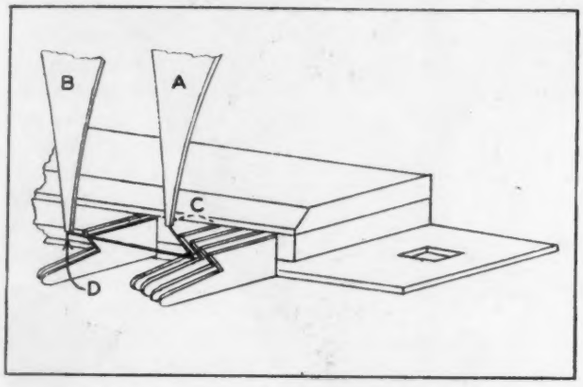
Philadelphia Sales and Show Rooms
Heymann Bldg., 213 S. Broad St.

Southern Offices
James Bldg., Chattanooga, Tenn.
Commercial Bank Bldg., High Piont, N. C

file down the ends of the sinker head until the sinkers again fit tight in the sinker head.

Needle Lines.

In reference to needle lines in hosiery, there are really only three causes for lines caused through faulty needles. The first cause of needle lines is that the needle is too long or too short. All needles should be uniform in length and short or long needles should immediately be replaced. The second cause is that the needle is either too heavy or too fine or in other



SINKER HEAD DRAWING

A—Splicing Carrier.
B—Main Leg Carrier.
C—Eight Sinker Lead from Splicing Carrier to Sinker.
D—Carrier Setting so that Carrier is Lower than Top of Sinker.

words not of the proper gauge. The third cause is that the needles are out of alignment through faulty pliering. These are about all the causes for needle lines and one must watch to see that causes are eliminated to stop needle lines being made in the knitted fabric.

After one has secured good fabric, the next problem is the matter of good selvages. A poor selvage on any stocking will make an unsightly looking seam and this will spoil the appearance of the stocking. The selvage on a full-fashioned hosiery machine is controlled mostly by the various tensions through which the thread runs. The first thing therefore, is to see that the threading up is done right, which is as follows.

The Question of Selvages.

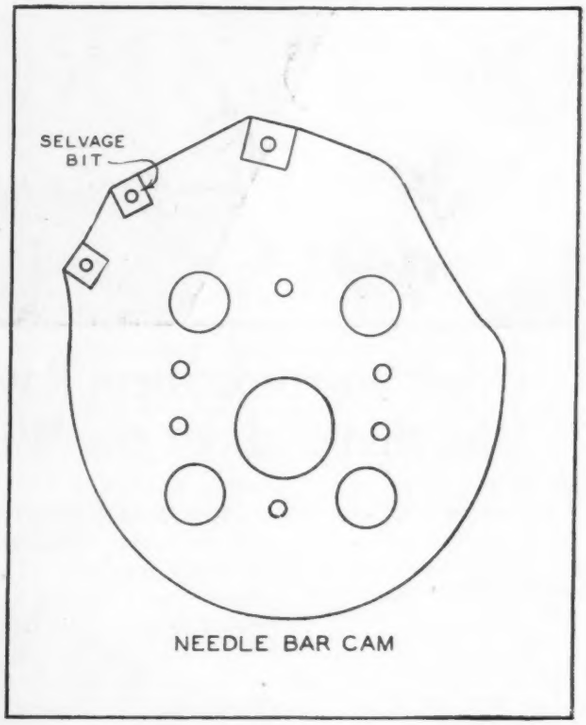
The thread in leaving the cone goes through the moistening wick first, then through the tension rings on the wires on top of the machine. The thread is then placed through the snapper and then down to the carriers and through the carrier tube to the needles.

For the cotton yarn threads, no moistening wick is used but the thread must go through cups in which felts are placed. When a stocking is making a poor selvage, the first thing to do is to see if the threading has been done properly. If this is correct, check up the tension ring and see if the ring is sliding up and down the tension wire. Many times one will find that the tension wire is too wide and does not allow the ring to drop down. If this is the case, it is necessary to squeeze the wire so that the ring will slide up and down in the wire. Another trouble is that the tension wire and ring will be gummy or sticky and the ring will stick to the wire. When this occurs, clean the wire and ring, so that the ring will slide and hold the thread tight. I might say here that each knitter should clean the tension wires and rings on a knitting machine each week and by doing this, a lot of selvage trouble will be avoided.

The snappers must also be adjusted at all times, so that the thread is held tight when the needle bars are going down into the sinkers, as no tension on the snappers will sometimes cause bad selvages.

If one finds that the threading and tension are all right and still finds the machine making poor selvages, then the next thing to look at is to see if the carrier is set properly. If the carrier is too high so that it allows the thread to throw over the sinker, then it is necessary to lower the carrier. In the setting of carriers, the proper setting is that the carrier is set so that the tube is in between the top of two sinkers and just a little lower than the top of the sinkers, as shown in the sinker head sketch herewith.

Another cause for poor selvages is friction trouble. Frictions are probably one of the most troublesome parts of a knitting machine and must constantly be watched and adjusted not only to make good selvages,



NEEDLE BAR CAM

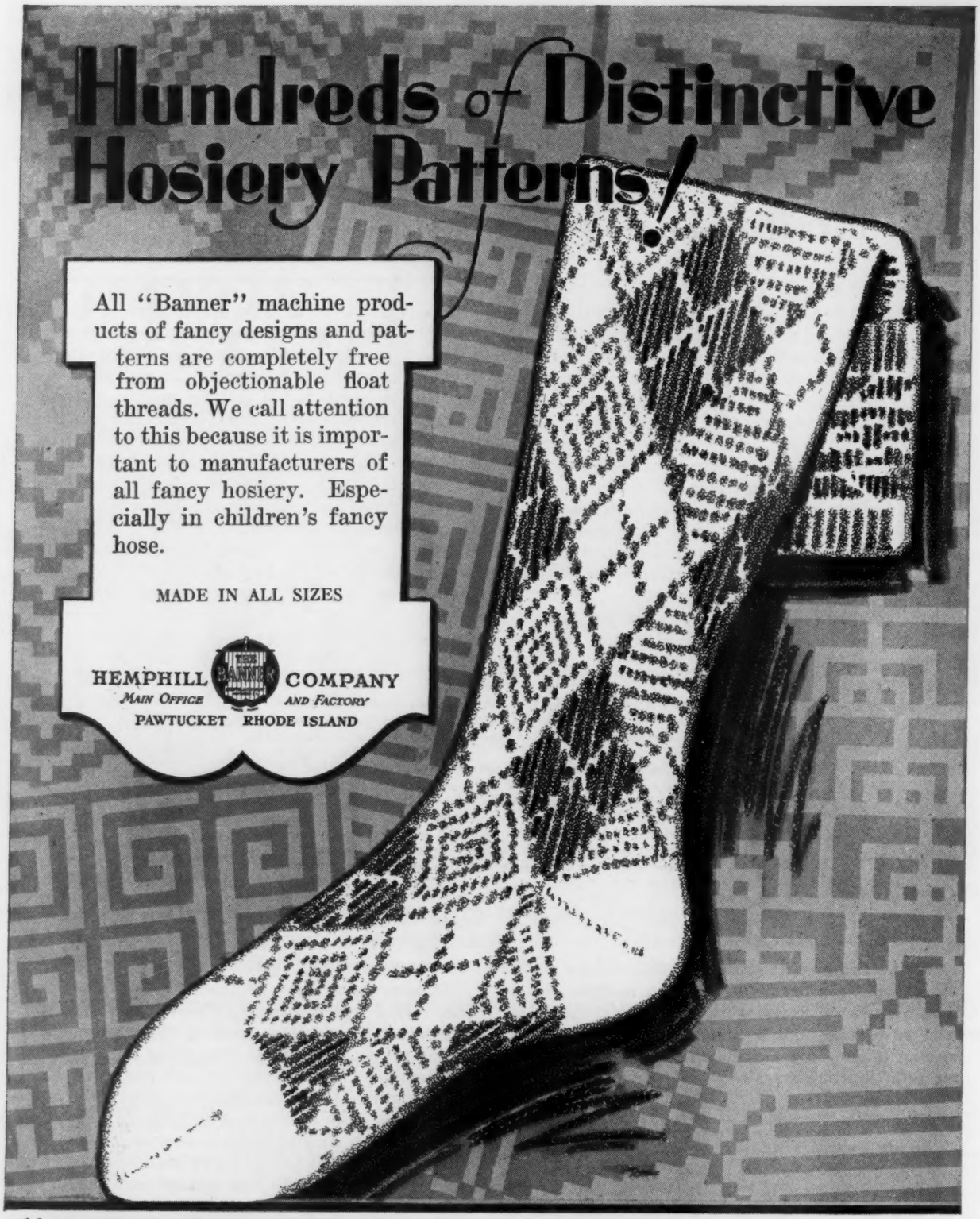
but to prevent the rebounding of carriers, thereby causing breakage of needles. Most friction trouble is caused by using friction leathers, which are not adapted for friction work. Friction leather should be such that they will not glaze easily through constant rubbing and at the same time grip the friction rods so as to prevent the rebounding of carriers. I know, for a fact, that many manufacturers do not pay much attention to what kind of friction leather is used and in some cases, have found that ordinary belting leather is used. The proper friction leather to use is a

Hundreds of Distinctive Hosiery Patterns!

All "Banner" machine products of fancy designs and patterns are completely free from objectionable float threads. We call attention to this because it is important to manufacturers of all fancy hosiery. Especially in children's fancy hose.

MADE IN ALL SIZES

HEMPHILL COMPANY
Main Office and Factory
PAWTUCKET RHODE ISLAND



"BANNER" Jacquard Machine Patterns

New York Sales and Show Rooms
93 Worth Street, New York

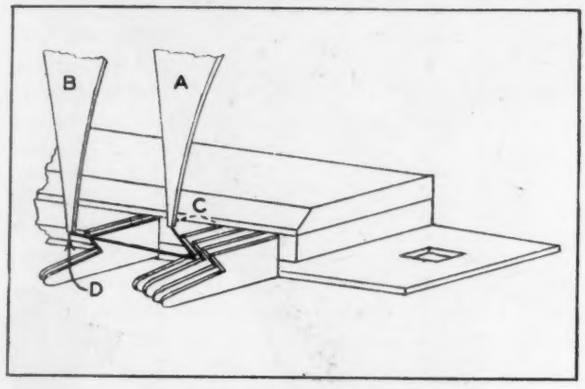
Philadelphia Sales and Show Rooms
Heymann Bldg., 213 S. Broad St.

Southern Offices
James Bldg., Chattanooga, Tenn.
Commercial Bank Bldg., High Piont, N. C

file down the ends of the sinker head until the sinkers again fit tight in the sinker head.

Needle Lines.

In reference to needle lines in hosiery, there are really only three causes for lines caused through faulty needles. The first cause of needle lines is that the needle is too long or too short. All needles should be uniform in length and short or long needles should immediately be replaced. The second cause is that the needle is either too heavy or too fine or in other



SINKER HEAD DRAWING

A—Splicing Carrier.
B—Main Leg Carrier.
C—Eight Sinker Lead from Splicing Carrier to Sinker.
D—Carrier Setting so that Carrier is Lower than Top of Sinker.

words not of the proper gauge. The third cause is that the needles are out of alignment through faulty pliering. These are about all the causes for needle lines and one must watch to see that causes are eliminated to stop needle lines being made in the knitted fabric.

After one has secured good fabric, the next problem is the matter of good selvages. A poor selvage on any stocking will make an unsightly looking seam and this will spoil the appearance of the stocking. The selvage on a full-fashioned hosiery machine is controlled mostly by the various tensions through which the thread runs. The first thing therefore, is to see that the threading up is done right, which is as follows.

The Question of Selvages.

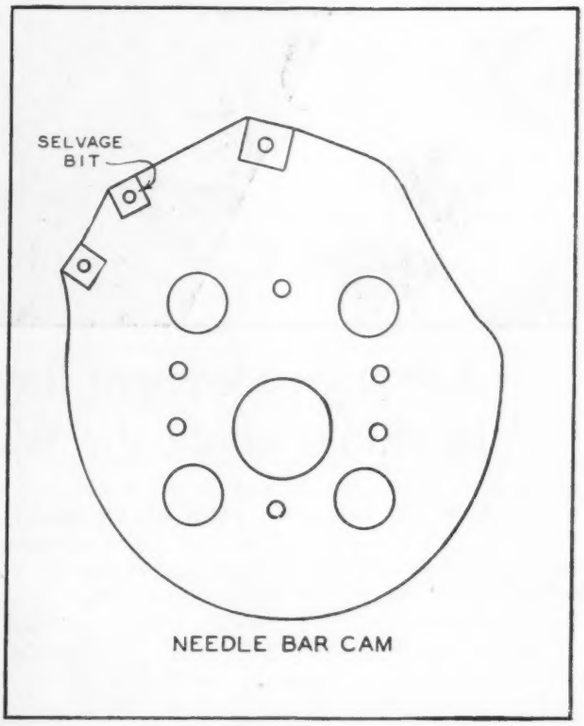
The thread in leaving the cone goes through the moistening wick first, then through the tension rings on the wires on top of the machine. The thread is then placed through the snapper and then down to the carriers and through the carrier tube to the needles.

For the cotton yarn threads, no moistening wick is used but the thread must go through cups in which felts are placed. When a stocking is making a poor selvage, the first thing to do is to see if the threading has been done properly. If this is correct, check up the tension ring and see if the ring is sliding up and down the tension wire. Many times one will find that the tension wire is too wide and does not allow the ring to drop down. If this is the case, it is necessary to squeeze the wire so that the ring will slide up and down in the wire. Another trouble is that the tension wire and ring will be gummy or sticky and the ring will stick to the wire. When this occurs, clean the wire and ring, so that the ring will slide and hold the thread tight. I might say here that each knitter should clean the tension wires and rings on a knitting machine each week and by doing this, a lot of selvage trouble will be avoided.

The snappers must also be adjusted at all times, so that the thread is held tight when the needle bars are going down into the sinkers, as no tension on the snappers will sometimes cause bad selvages.

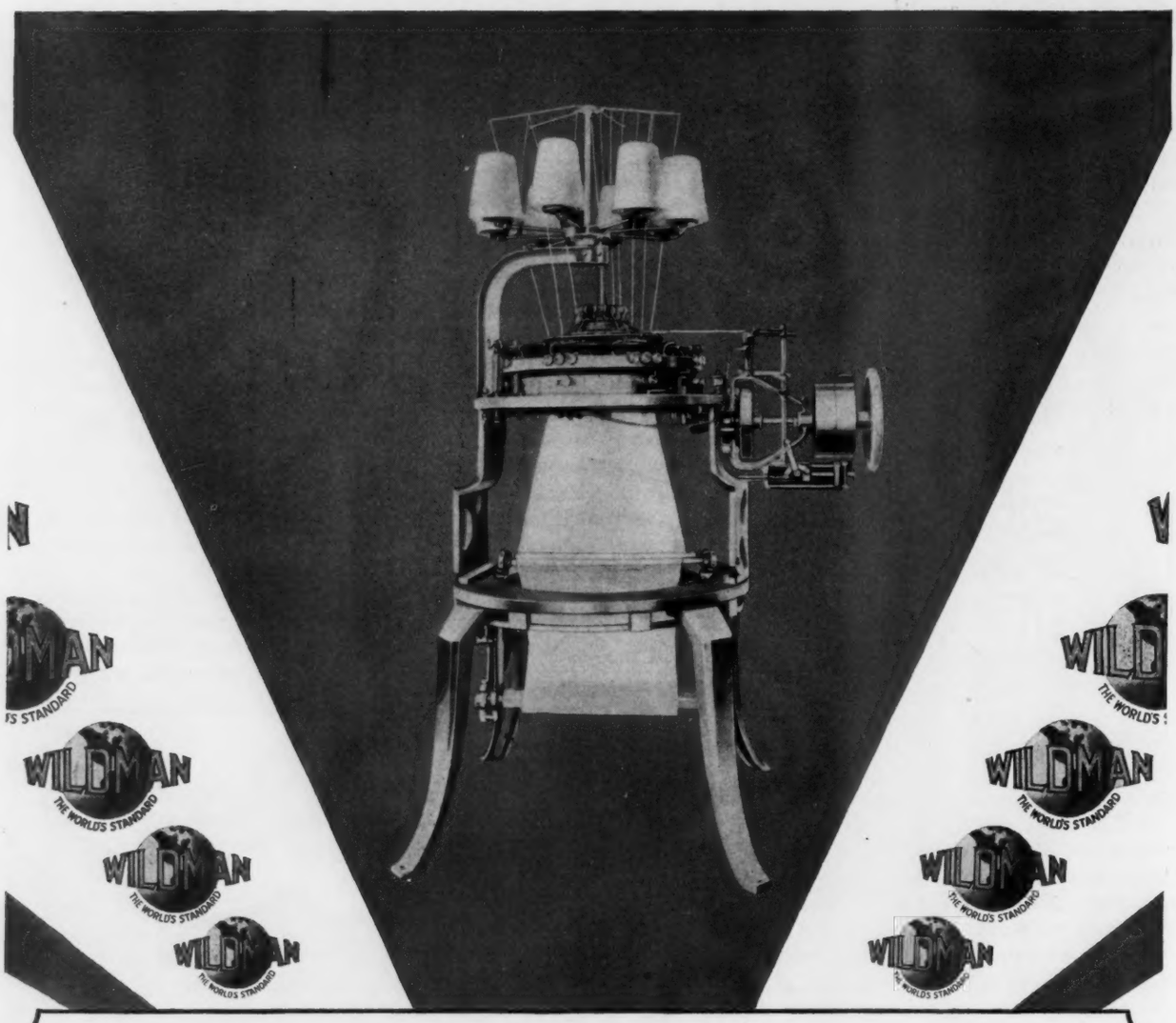
If one finds that the threading and tension are all right and still finds the machine making poor selvages, then the next thing to look at is to see if the carrier is set properly. If the carrier is too high so that it allows the thread to throw over the sinker, then it is necessary to lower the carrier. In the setting of carriers, the proper setting is that the carrier is set so that the tube is in between the top of two sinkers and just a little lower than the top of the sinkers, as shown in the sinker head sketch herewith.

Another cause for poor selvages is friction trouble. Frictions are probably one of the most troublesome parts of a knitting machine and must constantly be watched and adjusted not only to make good selvages,



NEEDLE BAR CAM

but to prevent the rebounding of carriers, thereby causing breakage of needles. Most friction trouble is caused by using friction leathers, which are not adapted for friction work. Friction leather should be such that they will not glaze easily through constant rubbing and at the same time grip the friction rods so as to prevent the rebounding of carriers. I know, for a fact, that many manufacturers do not pay much attention to what kind of friction leather is used and in some cases, have found that ordinary belting leather is used. The proper friction leather to use is a



Ask any prominent Rayon manufacturer what he thinks about the Wildman Body Machine.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
SPRING NEEDLE BODY MACHINE

leather that is soft and pliable and is treated for friction purposes. Many leather manufacturers have in recent years brought out leathers to be used for friction purposes and most of them that I have tried make good leathers for friction boxes on knitting machines. Proper friction leathers is a very important item in connection with a knitting machine and I urge every manufacturer or fixer of full-fashioned machinery to be careful as to the kind of leather that is being used. Many draw cam smashes can be traced to friction trouble and poor leathers and this can all be avoided if the proper friction leather is used.

When adjusting frictions, one must see that they are adjusted so that they hold and prevent carriers from rebounding, but do not make them too tight, otherwise there is danger of a draw cam smash. Never use machine oil on friction rods and when the friction leathers become dry, apply a little neatsfoot oil or castor oil to the leather. I prefer neatsfoot oil as I believe this oil preserves the leather for a longer period of time.

If selvage trouble occurs across the entire machine, then the trouble lies in the adjustment of the machine. On the needle bar cam there is a bit called the selvage bit and sometimes by raising this bit, the trouble can be rectified. The accompanying needle cam sketch will show the selvage bit on the needle bar cam.

If the raising of the selvage bit does not improve the selvage, then one must try to make other adjustments to improve the selvage. Sometimes by putting on the catch bar a little harder, will improve the selvage. Test out the presser cam and needle bar with gauges to see if they are set properly. Putting on or taking off a little on the presser cam rollers will sometimes improve it. Moving the needle bar cam so that it is a little sooner or a little later will also make an improvement. Lowering or raising the needle bars by adjustment on the needle bar rollers will also at times improve the selvage. As the reader will note, there are many things that can be done to make a proper selvage. I want to caution others, however, that when adjusting a machine to rectify the trouble, make one adjustment at a time and if this does not help, be sure to go back to the former adjustment before trying something else. The reason I mention this, is that it is quite a common thing for some fixers to make an adjustment, find it is not proper and before bringing the adjustment just made back to its former place, they will make another adjustment and before a fixer knows it, he has made so many adjustments that the machine is causing all kinds of trouble. Usually any trouble on a knitting machine can be traced to one adjustment only, but as a rule it is necessary to make several adjustments before the proper one is found. Therefore, if the adjustment just made has not helped, one can be assured that the trouble does not lie there, so bring back the adjustment to its former place before making another adjustment.

THE information which Mr. Baxter is giving in these articles pertaining to full-fashioned manufacturing problems is based upon intimate experience in the work and a close contact with these problems. If you have any particular difficulty or problem upon which you would like to have the author's opinion in a future article, you are invited to submit it to him through the Knitting Kinks section of COTTON.

Plaiting in Heel, Sole and Toe.

The matter of proper plaiting in the heel, sole and toe of a stocking is also a problem in connection with full-fashioned hosiery.

To plait properly, the first problem is in the frictions and as I have already said, by using the proper friction leathers so that the carriers will not rebound, proper plaiting will result. The main thing about plaiting properly is what is called the "lead". By this, I mean the amount of lead the carrier has from the sinkers as the machine is drawing a course across the machine. The closer the carrier can be kept to the sinker in plaiting, the better the plaiting. With proper friction leathers in the frictions, the lead can be brought down to from eight to nine sinker lead and with this short lead, proper plaiting must be the result. The sinker head drawing will show just what I mean by an eight sinker lead.

The proper setting of carriers is also necessary to secure good plaiting. The proper setting is that the splicing carrier should always be set a little higher than the leg carrier. By setting the splicing carrier higher, it means that the cotton yarn used for splicing is above the silk thread used in the leg and when a course is being made, the cotton yarn will lay inside of the stocking and the silk thread will lay underneath the cotton thread. The drawing showing the lead, explains the setting of the carriers. Proper tension on the cotton thread is also necessary, so that the thread is held firm, while the machine is making a course. I have found that it is advisable to use a heavy tension ring on the cotton yarn splicing and also arrange the felts in the felt cups, so that as much tension as possible can be secured.

Because of the tendency of the trade today towards a narrower heel, plaiting problems have increased, as it is much more difficult to plait a narrow heel than it is a wide heel. The reason for this is that the splicing carrier has too short a distance to go on a narrow heel and the result is that if the frictions are a little loose, there is a slight rebound of the carriers. The rebounding loosens the tension of the thread before the sinkers have formed the stitch and the loosening of the thread causes the cotton thread to overlap the silk thread. So it is only by having the proper adjustments on the frictions, having the carriers set properly and plenty of tension on the splicing thread, that one can secure good plaiting on narrow heels. It is also necessary to make the lead as short as possible on narrow heels, as the shorter the lead, the better the plaiting.

The Neglected 6 Inches

YOU can't put a full quota of style into men's half hose if you neglect the top —if you look upon it as a mere place to affix a garter clasp.

Multi-Design Fancy Tops

~True Ribbed~

The Multi-Design Machine is bringing a new conception of styling into the men's half hose business . . . offering a range of 90 colors vertical and 4 horizontal and a limitless variety of pattern possibilities . . . and a genuine true-ribbed fabric!

Investigate !

FIDELITY MACHINE COMPANY
3908-18 Frankford Avenue, Philadelphia, Pa.

FIDELITY

Another fault in plaiting is a so-called speckled effect in the heel, sole and toe after the hose has been dyed or in other words, the cotton yarn shows up in spots on the outside of a plaited heel, sole or toe. Sometimes this speckled effect will run up along one needle stitch. To overcome the speckled effect throughout the heel, sole and toe, it is necessary to check up the tension on the cotton yarn, as the cause for this trouble is usually an irregular tension, thereby forcing the cotton yarn to the outside or surface of the knitted fabric. Where the speckled effect runs along one needle line, the cause is usually a closed needle beard and this will result in the cotton yarn being forced to the surface of the hose.

"Speckled Effect" in Plaiting.

I find also that the speckled effect on plaiting can be reduced a great deal by using only high grade mercerized and gassed yarns. Ungassed yarns have a tendency to be fuzzy and when a cotton yarn is fuzzy, it is almost impossible to get away from speckled plaiting. There are some who expect the dyer to cover up the defects caused by poor plaiting by getting a very close match of cotton and silk. While the dyer can dye stockings so that minor defects of plaiting can be covered up, it is my suggestion to others that it is not policy to expect too much from the dyer, as far as poor plaiting is concerned, but adjust the various plaiting parts so that proper plaiting is secured, and then, if the dyer does not happen to get a good match, the plaiting will be such that it will not show through the outside of the stocking.

Poor plaiting will many times cause the dyer to overwork the dye lot of hosiery in order to cover up the plaiting defect and the result is that the entire dye lot of stockings will show an overworked condition, which causes the stockings to look unsightly. By making sure that the machines are plaiting properly, it will save many overworked lots and better finished hosiery is the result.

I have tried to cover as much as possible the matter of lines, selvages and plaiting in this article and in my next article, I will endeavor to show the readers how to overcome narrowing trouble, cuts and holes and the setting of draw cams.

Knitting Arts Exhibition, April 15-19.

THE Silver Jubilee of the Knitting Arts Exhibition will be celebrated at the Commercial Museum in Philadelphia, April 15 to 19, under the auspices of the National Association of Hosiery and Underwear Manufacturers, and will be the biggest event the trade has seen in many years. Two months in advance of the opening of the exhibition practically all the available space in the big Museum has been allotted. Many exhibitors will use larger space and are planning more elaborate exhibits.

The exhibition which furnishes a connecting link between three branches of the trade, viz, the manufacturer, the jobber and the retailer, is recognized by leaders in the trade as the one important event of the year when it is possible to meet and freely exchange ideas for the improvement of all branches of industry.

The annual convention of the National Association will be held in conjunction with the exhibition, while the social side of the exhibition will be in no way neglected.

The customary machinery exhibits will be installed including all the latest improvements and new designs, the effectiveness of which is demonstrated in the finished products turned out by skilled hands, thus lending added interest to the displays from the standpoint of the public as well as the trade. Extensive displays of dyestuffs and chemicals are also promised.

More than usual interest has been manifest by the industry this year, and every member of the trade will cooperate to make the Silver Jubilee event one which will go down in history as the greatest the industry has ever held.

The Knitting Arts Exposition has experienced a steady and healthy growth since it came under the management of Chester I. Campbell, and each year has witnessed greater enthusiasm and improved exhibits.

Knit goods manufacturers who attend the exposition will be amply repaid in the vast display of new machinery, attachments, devices, processes and mill supplies which will await their inspection.

The exhibition annually attracts an attendance from all sections of the country as well as from South America, England, Japan and other foreign countries.

"Seraceta" Rayon by the Viscose Company.

Cellulose acetate yarns produced by the Viscose Company are to be known as "Seraceta" rayon, the company announces. This is the same name that is applied to this type of yarn by Courtlauds, Ltd., the British parent company. Production of "Seraceta" yarn will start sometime during the latter part of this year at the new Viscose plant at Meadville, Pa.

The new "Dulenza" 75-filament, subdued luster yarn recently introduced by the company is now being offered on a quantity basis. In its announcement, the company states, " 'Dulesco' is the trade name given to the first of the Crown brand rayon manufactured with subdued luster. Besides having the high strength, evenness and excellent dyeing qualities of the bright luster yarns, its outstanding merits are greater softness, subdued luster and permanent finish. 'Dulenza' is a new rayon yarn developed by the Viscose Company on a quality and quantity basis. Besides the qualities enumerated regarding the 'Dulesco,' this yarn has 75 filaments in 150 denier to 36 and 24 filaments in the 'Dulesco'. As a multifilament yarn it is in consequence softer to the touch and is particularly desirable in high grade fabric, where this fact is of paramount importance."

Stetton Dryform Company Organized.

The Stetton Dryform Company has been organized, with offices at 509 Denckla Building, Philadelphia, and factory at Boudine and Cayuga St., Philadelphia, for the manufacture and distribution of improved metal dryforms for the hosiery industry. H. W. Anderson, president of the Fidelity Machine Company and Clyde Mills, Inc., Newton, N. C., is president of the new organization. J. O. V. Stetton, who has spent the last fourteen years in developing improvements and ideas in metal forms, will be vice president and gneral manager. W. Waldie, of Philadelphia, is the secretary.

Testing Dyestuffs *for* Fastness

The Author Gives Illustrations of His Methods for Determining the Fastness of Colors Under Various Conditions of Use

By Noel D. White

Article Eighteen of a Series on "The A B C of Dyeing"

TEXTILES dyed with the proper dyestuffs should never crock provided they are properly applied. In light shades that very seldom happens, and on medium and dark shades, if goods are carefully prepared and dyed with a judicious selection of dyestuffs, there is little danger of having crocking dyed goods, colors that rub off.

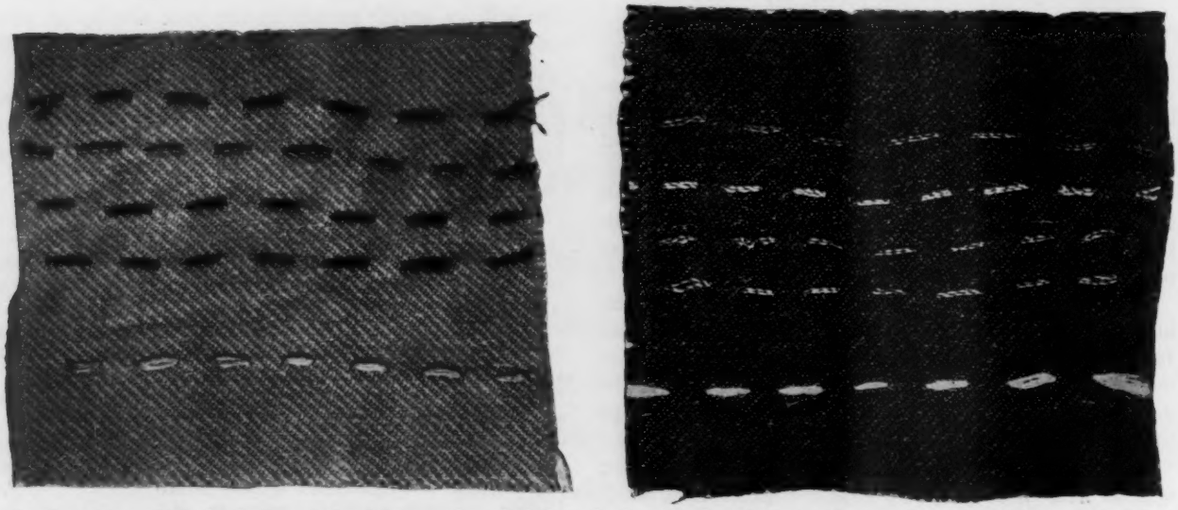
Using the Proper Dyestuff to Prevent Crocking.

In some cases, however, that cannot be avoided. In dyeing dark shades with the fastest dyestuffs known, the indigo or the synthetic equivalents—the vat colors—there is a tendency of the goods to crock even after being boiled in a soap bath. The large amount of color deposited on the fiber makes it unavoidable, and only with the greatest of care crocking can be minimized in those cases. However, crocking from goods dyed with those colors will scarcely bleed on other fibers or colors, because it is caused by insoluble excess dye stuff.

Sometimes goods are found to crock after being dyed because unsuitable dyestuffs have been used. Wool dyed with basic colors will likely crock badly. Basic colors are not designated for wool dyeing, and only an expert may be able to use some of them with success, for as a rule these dyes are the most brilliant and at the same time the most subject to crocking when used in large doses on any fiber.

It has been said that cotton can be dyed without any previous preparation, boiling off, scouring, etc. That is true when the dyeing is done with substantive dyes, because those dyes color the cotton best in an alkaline bath, and such a bath will scour the cotton while it is dyed; but, if the goods happen to be unduly stained with machine oil and the like, the dyer is apt to be disappointed in his results. His bath is not strong enough in alkali to saponify all greases, and very bad results may be obtained—spotted goods and dyeings that crock.

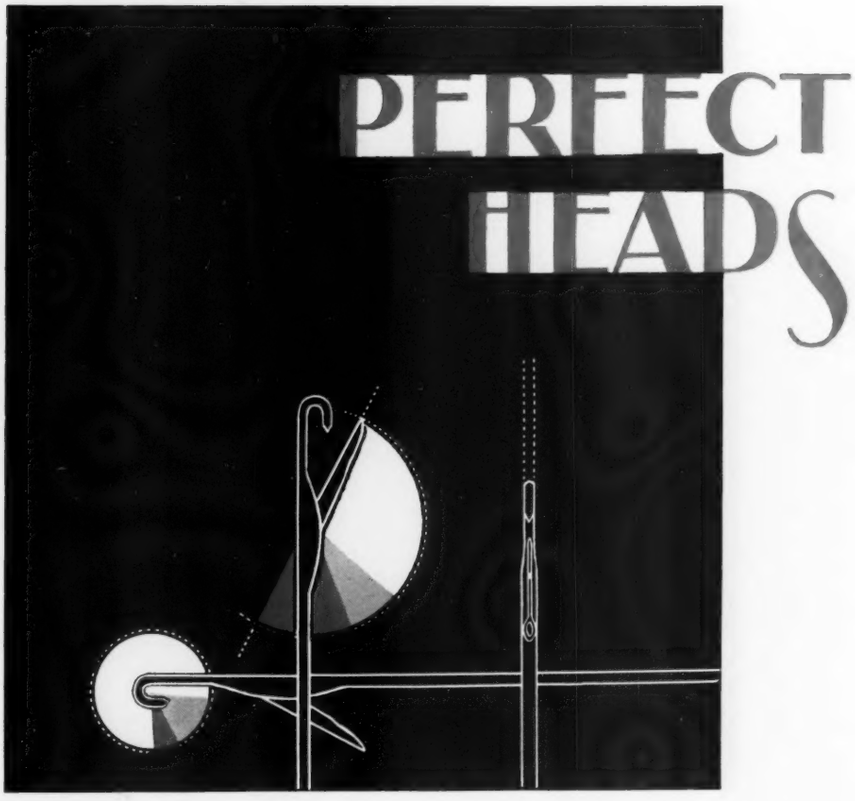
As, in some cases, dyeing on cotton cannot be produced bright enough to match a pattern with the direct colors, the dyer must resort to basic dyes, and the cotton must be first mordanted with tannic acid and tartar emetic. In this case, the cotton must first be given a thorough boiling to remove all impurities, then the mordanted goods are dyed with the basic colors in an alum or acetic acid bath, and care must be exercised to force the dyes on the cotton slowly and secure a thorough penetration. Also in most cases they must be soaped to remove all traces of unexhausted dyes, or crocking dyeings are sure to be the result.



In the piece of cloth shown at the left are threaded five shades, dyed with fast colors and resisted; to be tested for fastness to cross dyeing. They are, from top to bottom, a blue, a black and white thread twisted together, a red, a green and a white. The same yarns, after having been cross-dyed a navy blue, are shown at the right. All stood the test well.

Crocking of Dyed Silk.

In dyeing silk in dark colors, it is very easy to have dyeings that crock. Usually the cause may be found to be over-dyeing. Supposing a dark blue is wanted, the dyer has a blue dye for a bottom, and finds some toning is needed; if the blue for the bottom is dark enough, a little orange or red will be all that is necessary. But, if the bottom is not dark enough, no amount of the same blue will ever raise the depth of color, another and darker blue must be found, or a



on TORRINGTON LATCH NEEDLES

THERE are fine points to the production of latch needle heads which are thoroughly understood by Torrington.

Just the right degree of curve, an exact shaping of the head, and extreme accuracy of size to permit proper latch closing . . . are factors in knitting success which Torrington Needles possess.

Torrington Latch Needles are above the ordinary . . . in smoothness, fine temper and that vital feature, uniformity. Specialization in precision manufacture enables Torrington Needles to meet the ideas of master knitters in this and every country.

Also manufacturers of Torrington Full Fashioned Needles, which enable knitters to secure economical production because these needles possess unusual features

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

THE TORRINGTON COMPANY
CHERRY AND JUNIPER STS.
PHILADELPHIA

BRANCHES:
C. B. BARKER & CO., LTD.
140-144 W. 22ND STREET
NEW YORK, N. Y.

LOS FABRICANTES UNIDOS
964 CALLE BELGRANO
BUENOS AIRES

FACTORIES AT:
TORRINGTON, CONN.
UPPER BEDFORD, CANADA
COVENTRY, ENGLAND
AACHEN, GERMANY

Those *fine* things people *adore* . . .

Whether stockings, underwear, or what, people want finery that is lustrous with the sheen of expensive materials. Because the pocketbook happens to be lean does not lessen the longing desire to own them.

American mercerized yarn meets this demand and the result is not cheap merchandise, in the sense of lacking these essential characteristics, nor in wear, but in lower price.

The fine expensive sheen of American yarn is well known, and the favorable reputation is jealously guarded. It can give your product an added style value that means extra profits—weavers, as well as knitters, are finding a place for it.

It is spun from one carefully selected grade of cotton to meet rigidly maintained specifications. You are assured of an unvarying standard.

Ask for quotation on any count, or let us confer with you on the use of mercerized yarn in your goods.

AMERICAN YARN & PROCESSING CO.

MOUNT HOLLY, N.C.

REPRESENTATIVES

Northern States and Canada, WATERMAN, CURRIER & CO., Inc., Boston, New York, Philadelphia, Reading Pa., Utica, N. Y.

H. B. ROBIE, 93 Worth Street, New York City.

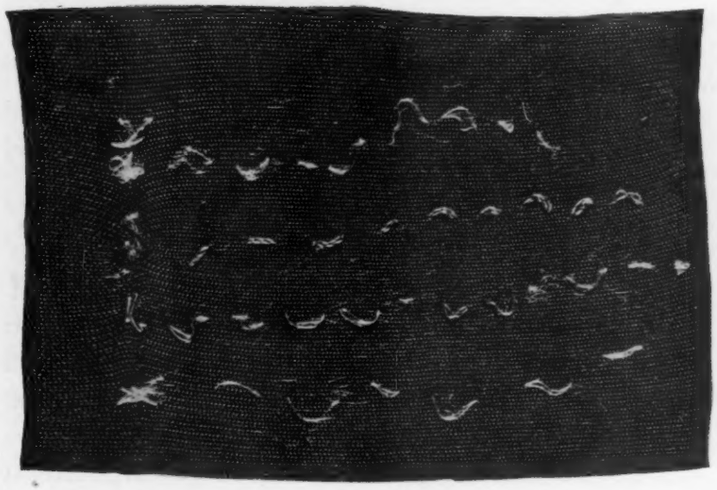
LOUISVILLE TEXTILE CO., Inc., Louisville, Ky.

DAVID WHITEHURST, 109 Parkway, High Point, N. C.

R. D. McDONALD 924 James Building, Chattanooga, Tenn.

combination of green and violet must be used. An attempt to increase the depth of color by using a blue that is too light will only cause over-dyeing; that is, an accumulation of unabsorbed dyestuff on the surface of the fiber which will crock badly when the silk is dried.

As a rule, crocking from over-dyeing is easily detected and corrected. The silk appears bronzy, with an unnatural luster; a look at the bath will show it is all broken up with an oily appearance. If goods are dried from that bath and wrapped in paper, this will in no time absorb and show greasy. A clean handkerchief rubbed over the dried yarn will be stained and color will bleed badly. To correct such dyeing, it is very easy. In a hot bath with three to four per cent olive soap, and a handful of soda ash the goods are worked for about thirty minutes, and the surplus color will dissolve and wash off, then the lot can be dyed again to the proper match with more suitable dyes.



Testing resisted yarn for boil-off and cross-dyeing on silk and mercerized hosiery.

An incident that occurred to the writer will illustrate a case of this kind. While working in a dyehouse on silk dress goods, the dyer in charge was injured in moving some machines, and had to absent himself from the works until he got well again. It happened on a Friday, and before he left he covered up the rest of his work, thinking he would finish on the followin g Monday. One of the men in the place thought he could dye some of the colors himself, and with the permission of the manager went to work on a piece that had to be dyed red. His knowledge of dyestuffs was very limited, however, and when he got to a certain point in the dyeing of that piece he could not get it dark enough. He kept adding dyestuff to that silk piece, and worked on it all day, finally had to give it up as a bad job. On Monday when the old dyer came back he was told of the struggle with that red piece by the would-be dyer, and of his final discomfiture. A look at the color immediately revealed to the dyer what was the cause, and to the utter amazement of the other man, he had the mischief corrected in a very short time. With a warm soap the surplus dye was discharged, and the shade brought up to match in a fresh bath with very little dyestuff and no trouble at all.

Finding the Maximum Tinctorial Strength of a Dye.

A knowledge of how a dyestuff will behave in the bath is essential, and must be acquired by constant practice, testing and trials. One of the principal things to learn when testing dyes for dark colors is to find out how deep a shade can be coaxed out of a given dyestuff. A test is made with three per cent, then one with four per cent, and one with 5 per cent; see the difference and perhaps continue increasing until the percentage is found where no darker color can be obtained with that dye alone. Also, increase the amount of chemicals used in the bath, and note the difference. If acid, test with two per cent and with three per cent or four per cent; if only salt is used, test with from five per cent to forty per cent, keeping in mind that the more dyestuff is used the salt should be increased, also. It will be found that with the direct colors sometimes an addition of salt is sufficient to bring the shade up in depth of color quite considerable.

In that way, the maximum tinctorial strength of that dye is found. If a darker color is to be produced an addition of some other and darker colors must be made. A black, grey, or a red—anything that is suitable for that purpose.

Supposing a dark red is desired, and the maximum tinctorial strength of a known red dye is five per cent, it would be foolish to try with more than that percentage with the idea to reach the depth of shade of the pattern sample. The greater amount of dyestuff will perhaps break up the bath, and a crocking dyeing would be the result. The darker color can be obtained with an addition of garnet or purple, blue or black, as the case may be right at the start.

The Danger in Standing Baths.

When a dyeing is carried on to a complete exhaustion of the bath, no danger of crocking need be feared if the proper dyestuffs are used, but with some dyestuffs that ideal condition cannot be obtained. This is true especially with substantive colors which need not crock on that score provided the bath is not overcharged. To reduce the cost and save on the dyes, unexhausted standing baths are usually kept. Here the danger arises by using too much salt in subsequent dyeing, and a careful watch using these standing baths must be kept, reducing the amount of salt in proportion even more than the amount of dyestuff added, or bronzy and crocking dyeings are sure to be obtained.

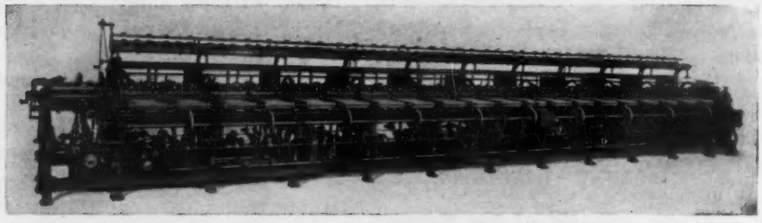
Even in standing baths for black, subsequent dyeing must be watched closely. The bath may often be overcharged with salt and bronzy black may result, which invariably will be found to crock and the cause

Still a good engine . . .

but no longer good enough to pull the "Broadway Limited"

Excess-fare trains — super-fine stockings! They both need machinery equal to the task — machines of precision, reliability and speed. Old-fashioned equipment has its place on the local runs — on the cheaper goods — but the markets, the styles, the competition of today demand machines designed for the needs of 1929 — and of the future.

TEXTILE MACHINE WORKS—READING, PA.



A Reading 24 Section Legger. The full-fashioned knitting machine of 1929. Capable of producing the maximum number of "firsts" at the lowest possible operating and maintenance costs. Modernize your obsolete equipment with Readings.

The "READING" Full-Fashioned Knitting Machine

will be found in having too much salt in it.

Fastness to Milling.

Dyed yarn that has to be used in weaving or knitting with other colors or fibers, and subsequently scoured or fulled or wetted for finishing, has to be tested to see if it is capable of standing that treatment.

Usually this yarn is expected to stand a fulling process of several hours, like when it is entered as a pencil stripe or stripes of several colors in woolen suiting, and if not fast enough will bleed in the neighboring threads, spoiling the pattern, or discharge and change the original color of the stripe, laying the dyer open to a complaint, or even to a damage suit. So a judicious selection of dyes for this work is very important.

After making a sample test of the dyestuffs selected, the test—dyed in the same way and with the same chemicals as if a lot had been dyed—is put in a warm solution of alkaline soap similar to that used in the mills where that yarn has finally to be used. The writer when engaged in that line of work used to send for the scouring and fulling soap in one of the customer's mills so as to be able, as near as possible, to test under the same conditions as those in the mill. Some mills prepare their scouring soap, adding two per cent of caustic soda, while others use soda ash. A good way to prepare a testing soap is to dissolve ten grams of olive soap in a little boiling water, then add two per cent soda ash and dilute to one quart of water. The colored yarn to be tested is braided with some un-colored yarn, or threaded in a piece of knitted or woven cloth, then immersed in the soap solution at 120 to 140 degrees F. and rubbed between the hands until the cloth is seen to begin to felt after which it is washed, and the result may be judged by it.

Fastness to Cross-Dyeing.

When dyeings are requested to be used for cross dyeing as for fancy hosiery, decorating woolen suitings, or other similar fabrics to be subsequently dyed and finished as fashion demands, the selection of dyestuff is not the only thing to be considered. In this case dyestuffs have to be fast, of course, but the dyed yarn has also to undergo some treatment to prevent other colors to cover it and destroy the desired effect.

With the different yarns now in the market, each having a different affinity for dyestuffs, it is possible to produce a multi-colored effect without resorting to any resisting or after-treating of the yarns. For instance, it is possible to use silk, rayon, wool, Celanese, or Lustron, and dye three colors in the same bath, using for each fiber the dyestuff for which it has the most affinity. This is also cross-dyeing, but will not be discussed now.

Silk is prepared for cross-dyeing with silk by first dyeing part of it with alizarine, vat, developed, and some sulphur and basic colors. When dyed in the regular way with those several and different dyes, the dyed silk is after-treated with tannic acid and tartar

TESTING dyestuffs for hosiery as to fastness to crocking, milling, and cross-dyeing is the subject of this article in Mr. White's series. He covers the subject, as usual, in an extremely practical and readable manner. He will welcome further suggestions from readers as to topics for later discussions.

emetic, or antimony salt, then washed and soaped at the boil. When dried, it is woven or knitted with the untreated silk, and the fabric dyed with acid or substantive dyes. As this treatment does not protect against basic colors, these colors must not be used in the subsequent dyeing of the fabric. Any two color effects can be obtained that way.

Silk so treated can be also used in weaving stripes in woolen goods to be dyed with acid or chrome colors, but an expert dyer will so select his woolen dyes to be able to dye his cloth with the decoration in it of silk dyed fast, but without resist. There are many dyes for wool having no affinity for silk.

With some product sample of dyes for wool, tests are made with square pieces of woolen cloth into which are threaded pieces of white or colored threads of un-resisted silk, and the wool dyed as usual; those dyes which leave the silk uncolored can be selected for the work.

Wool can also be decorated with stripes of colored cotton or rayon, and dyed afterwards but in this case care must be exercised to use only colors which dye the wool in acetic or formic acid, because the use of sulphuric acid, which is ordinarily used to dye wool, may carbonize the cotton or the rayon in drying and destroy the decoration. Some beautiful effects can be produced on wool by dyeing and resisting wool threads for the warps, or the filling, or knitting stripes in the same manner as described above for silk, and cross-dyeing afterwards with acid or chrome colors.

What can be done in work of this kind by treating white or colored fibers, and by using different fibers in a fabric can be left to the imagination of the dyer and designer. Innumerable patterns and designs can be created by learning how to select, combine, and prepare the different fibers, and by dyeing and resisting one or more in the proper manner.

[This is the eighteenth of a series of articles, "The ABC of Dyeing", by Mr. White. The next will appear in an early issue.—The Editor.]

New Parks-Cramer Humidifier Jobs.

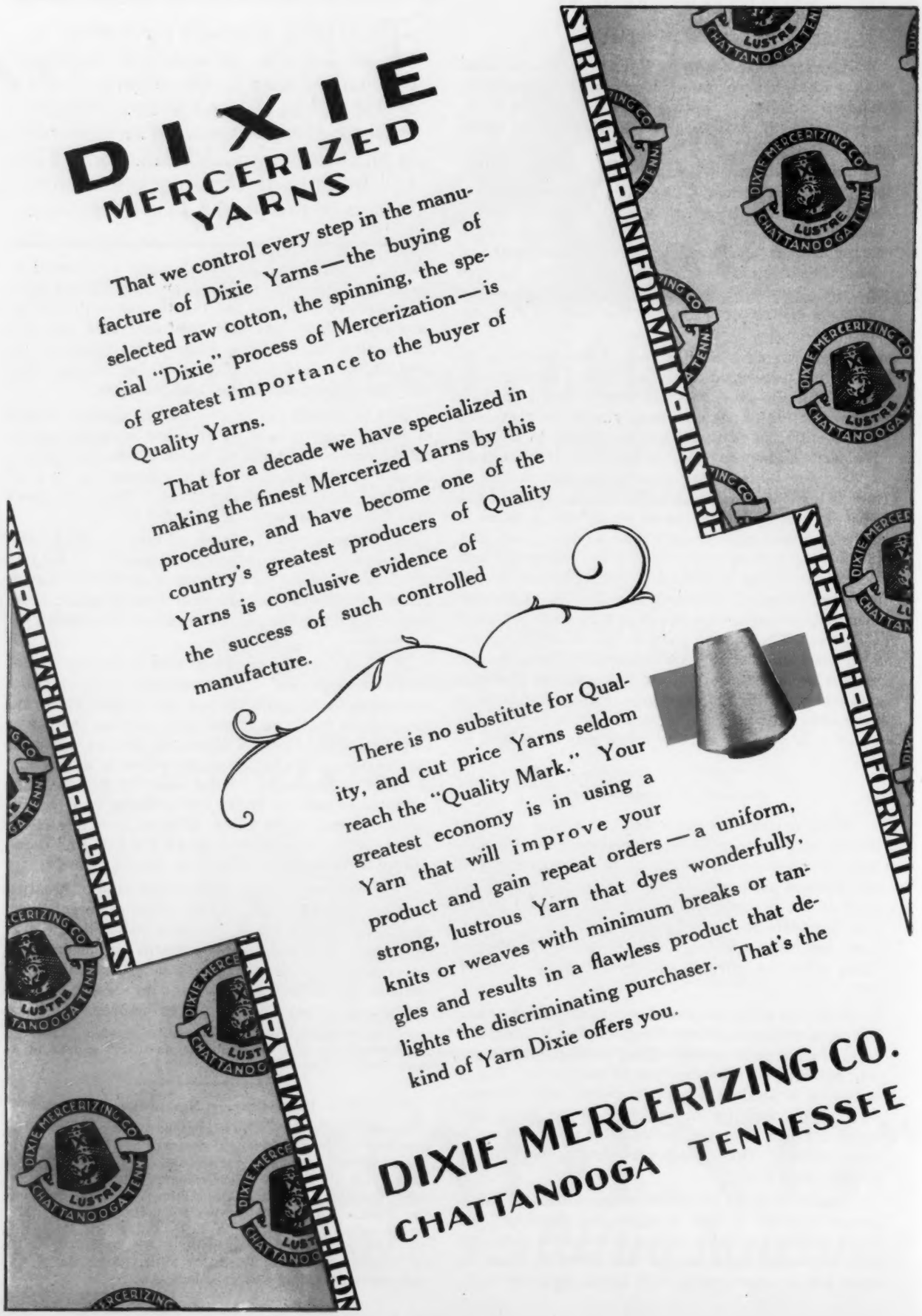
Among the textile concerns who have recently placed orders with the Parks-Cramer Company, Fitchburg, Mass., for humidification equipment are the following: Coventry Co., Anthony, R. I.; Boyd Textile Company, Williamston, Mass.; Androscoggin Mills, Lewiston, Maine; Glendale Spinning Co., Hamilton, Ontario; Thermo Mills, Hudson, N. Y.; Victor-Monaghan Mills, Walhalla, S. C.; Alice Mfg. Co., Arial, S. C.; Winnsboro Mills, Winnsboro, S. C.; Rudisill Spinning Co., Lincolnton, N. C.; Wiscasset Mills, Albemarle, N. C.; and Bemis Bros. Bag Co., Talladega, Ala.

DIXIE MERCERIZED YARNS

That we control every step in the manufacture of Dixie Yarns—the buying of selected raw cotton, the spinning, the special "Dixie" process of Mercerization—is of greatest importance to the buyer of Quality Yarns.

That for a decade we have specialized in making the finest Mercerized Yarns by this procedure, and have become one of the country's greatest producers of Quality Yarns is conclusive evidence of the success of such controlled manufacture.

There is no substitute for Quality, and cut price Yarns seldom reach the "Quality Mark." Your greatest economy is in using a Yarn that will improve your product and gain repeat orders—a uniform, strong, lustrous Yarn that dyes wonderfully, knits or weaves with minimum breaks or tangles and results in a flawless product that delights the discriminating purchaser. That's the kind of Yarn Dixie offers you.



DIXIE MERCERIZING CO.
CHATTANOOGA TENNESSEE

Operating and Adjusting the Banner Knitting Machine.

PART TWO

[This is the second article in a series discussing the operation and adjustment of Banner knitting machines. The first appeared in the February number. Several more will follow in later issues. These articles are written by a practical man, who will welcome discussion or comments or questions from any reader.—The Editor.]

EDITOR COTTON:

In this letter I will continue my discussion of adjustments, fitting, and difficulties, in connection with the operation of the Banner type of knitting machine:

Stitch Cams.

When adjusting stitch cams it is quite common to simply pull the block back and slip a gauge under the point, then if they are a little off to try and adjust them in their regular position on the machine. To satisfy yourself that these cams, which are an important part of the machine, are properly adjusted, why not have an old cylinder and a flat plate on the workbench, slip the cam block off the machine and work in comfort. This method will also save time and perspiration. The adjustments are:

60-70-gauge, .710 inch
48-54-gauge, .688 inch
36-gauge, .681 inch
18-24-gauge, .625 inch
12-gauge, .500 inch

These cams on machines finer than 36-gauge are concaved, and when doing this, be sure that the point below is the same level as part above concave. Have this concaved part not more than 5/16-inch long and the depth, which varies with gauges, never more than 1/16-inch deep. Excessive grinding will cause chattering of needles and place undue strain on the yarn.

On half-hose machines when the block goes against the short butt needles (during transferring) if these needles are staggered from their regular position, this can be remedied by rounding the top edge of the front stitch cam where the needles ride.

Center Guard Cam (135).

The function of this cam is to lower the needles, after one stitch cam has served as latch opener, to the level of the other stitch cam and on some gauge machines where it is desired to do reverse plaiting, it is often necessary to grind off a small part of the point, to allow the needles to raise high enough to engage both yarn being used at different levels. In grinding this cam the amount that is possible to be ground off can first be ascertained by removing this cam from the block while it is in action against the cylinder. Grinding off too much of the point will spoil it.

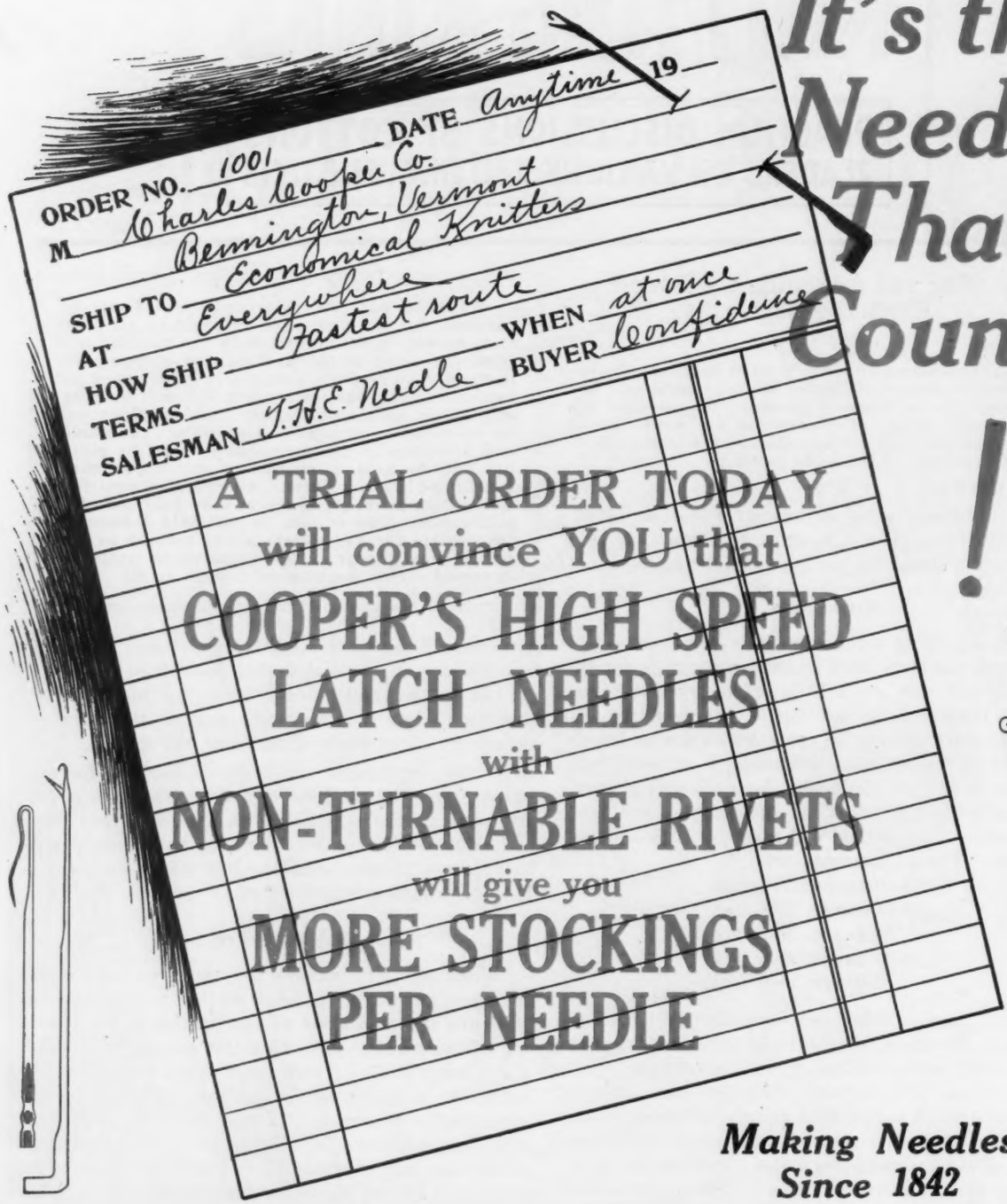
If the center raise cam (136) is removed for any purpose and the machine is operated at high speed, the angle on the center cam should not be too steep and sufficient tension must be kept on the needles so they do not bounce below the line where the yarn is fed, thus causing drop stitches.

Raising Pickers.

When replacing pickers, they must have all working parts thoroughly polished so that they move freely on the stud and allow an easy motion to the releasing of the needle. Have them far enough away from the cylinder so they do not catch on the return motion, with just sufficient tension so that they will remain steady after returning. If they have too much tension, they will drive the needles out of line against the stitch cam, and if insufficient tension, they are likely to stick at the top of the motion and get caught in the raised needles. On the fine-gauge machines there should be just enough lip to engage one needle, and not enough to touch the one following. There is always plenty of stock, so the point where the needle rides when being released can be rounded to give it an easy releasing motion. When the front pickers on coarse-gauge machines bounce up and down in the run down, this can be remedied by grinding the bottom so it will seat on two or more needles at the same time. The pickers are pliable, and quite often, sufficient adjustment cannot be secured by moving the brackets when it is necessary to place them in a vise and bend

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

It's the Needle That Counts !



Making Needles Since 1842

Charles Cooper Company
Machine & Needle Works

G. H. ROGERS, Traveling Representative, 877 Warren St., Albany, N. Y.
C. C. KELLEY, Sales Manager, 121 East 24th St., New York City.
G. W. MORTON, Southern Representative, 1002 Magnolia St., Greensboro, N. C.

BENNINGTON, VERMONT, U.S.A.

Agents: MELLOR, BROMLEY & CO., Ltd., LEICESTER, ENGLAND.
ELBROOK, INC., 50 Peking Road, Shanghai, China, Agents for China and Japan.
M. BUCHSBAUM, Calle Alsina 1814, Buenos Aires, Argentina.

them to the required shape. The pickers should rest on the stitch cams and not on the screw in the cam block clamp which is used to raise the pickers, when the block is pulled away from the cylinder.

Lowering Pickers.

It is also necessary that these pickers have an easy movement, be free from cylinder so they do not bind at any point and have enough throw to lower the needles to the same level as those not raised. Have just enough lip to engage two needles with sufficient tension to hold them in position until the needles have been engaged and throughout lowering motion. Insufficient tension will cause them to be knocked away from their proper seat, and also when dropping out of action the sudden drop will knock them down into the line of lowered needles, causing a smash. If the picker has insufficient throw it will leave the lowered needles above the regular line, giving the raising picker a flip and often sending it into the raised needles, which causes smashes.

On some size machines it is necessary to use a shim under the bracket, but care should be taken that the shim is of the right thickness and does not raise the bracket high enough to rub on the sinker head when it is necessary to loosen the stitch considerably. When replacing a bracket having a shim, if the shim holes do not conform with the holes in the bracket, it will bind the picker bracket pin (77) and give a slow non-positive movement when going in and out of action. This often happens after a smash.

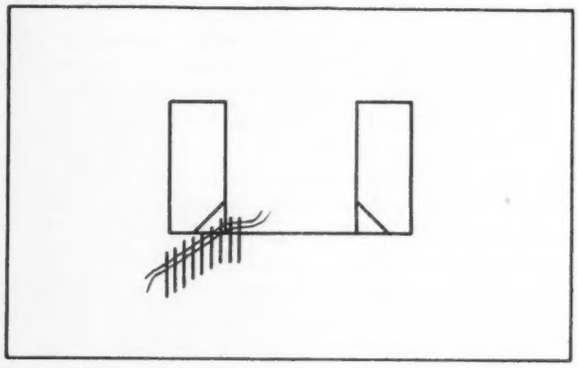
When setting the lowering pickers, it should be borne in mind that they do not engage the needles on the first move of the drum, unless for a specific reason, and when they do, the corners at the finish are uneven.

Carrier Ring.

It is of the utmost importance that the carrier ring is seated in the proper position. The mouthpiece and latch openers should be fitted and polished so that the edges conform to the angle of the carrier ring and have no sharp edges where a needle might strike. Have the ring seated about the needles so that there is not enough room at any place to close a latch with the needles in either their regular or raised position and low enough so there is not enough room to close a latch when the needles are passing under the latch openers in the reciprocating motion. The carrier ring follows the position of the cam plate, and when it is not properly seated, frequent drop stitches will occur at places where the cam block is raised or lowered to a considerable extent such as snapping out of the heel into the double sole.

The mouthpiece is one of the most essential parts of the machine, due to the fact that if the yarns are not fed to the needles properly, an imperfect or second quality fabric will be made. As stated before, the mouthpiece must fit exactly in the carrier ring, be free from nicks, and the corners of the mouth perfectly smooth, so that the yarns do not have any chance to catch or receive undue tension. When fitting a new mouthpiece, it should be adjusted so that the yarn is fed to 2 or 2½ needles before they strike the stitch cam on the downward movement. (See sketch.)

This is very important in order to secure good plaiting in the double sole. When the yarns are fed



to too many needles there is a marked tendency for them to change positions in the hook of the needle before the stitch is formed, causing mis-plating. Quite often it is the custom to take a piece of emery cord and polish a ridge in the corner of the mouth to hold the yarn in the same position after it has dropped into that point, but if this groove is just a trifle deep, and two yarns are used in the heel and toe, it may cause them to be split and form small holes at intervals in the gore.

Care must be taken to have the inside edges of the mouth flush with the carrier ring, so that the end fingers do not strike it when going into action. If the mouthpiece is narrower at this point than the carrier ring, the fingers will wedge and work in a stiff or retarded motion.

Polish the bottom of the mouthpiece smoothly so there is no danger of the latches finding a nick when striking it and bending the latches off center. When seating the carrier ring there should be ample clearance so that the bottom of the mouthpiece does not scrape on the sinker ring.

BANNERMAN.

[The foregoing article is the second of a series on operating and adjusting the Banner knitting machines. The third installment will appear in a forthcoming number. Copies of installments already published will be furnished upon request. Readers are invited to discuss any point in any of these articles, giving their opinions and experiences. —The Editor.]

Newport Adds Two More Vat Colors.

The Newport Chemical Works, Incorporated, Passaic, N. J., recently announced the production of two vat colors. These are Anthrene Red F F A and Thianthrene Red Violet R H. They are both brilliant bluish reds, valuable in the production of shades of rose, purple, violet, etc., it is stated. The F F A is applied in a cold vat, and the Red Violet R H is extensively used for printing.

New Equipment for N. C. State College.

The textile school of the North Carolina State College, Raleigh, N. C., has installed a Breton minerol process for oil spraying textile fibers, especially cotton. The oil spraying of cotton has raised many questions for textile manufacturers and Dean Thomas Nelson of the textile school, has offered the free use of this process and the laboratories of the school to any mill which desires to send representatives to the school to conduct tests.

23% Versus 25% Boil-Off Oil.

EDITOR COTTON:

Replying to "CONTRIBUTOR NO. 4074" concerning the comparative value of 23 and 25 per cent boil-off on full-fashioned silk used on 39-gauge Reading machines, will say, I do not believe it makes much difference whether he has a silk of 23 per cent boil-off or a 25 per cent boil-off, as long as he knows which grade he is supposed to have.

We have a throwing plant of our own, and also have much throwing done on the outside by the commissioned throwsters. The work done on the outside is on a guaranteed 23 per cent boil-off basis. We find this gives very satisfactory results. In our own plant we aim to keep on about the same basis. However, there are times when much silk will run exceptionally hard, and when a small addition of oil is used better results are obtained on the knitting machines. I would say that it depends to a great extent on the condition of the raw silk.

In knitting full-fashioned hosiery, the silk must be in a soft and pliable condition as it reaches the needles. If the silk is in such a condition to take moisture readily, thereby enabling the contributor to make an even, smooth stitch, the actual per cent of boil-off, I believe, does not make much difference. Of course, he must know what his per cent of boil-off is in order to keep his cost figures correct.

CONTRIBUTOR NO. 4082.

Asks How to Use pH Control.

EDITOR COTTON:

How can I use pH control in my work?

The latest wrinkle is fostered by our esteemed scientists, delving into the intricacies of the hidden forces of electricity and chemistry. They are trying in every possible way to make life less of a burden for suffering humanity, and in this special instance, to lessen the worries and uncertainties in the work of the benighted dyers. That is what they are pleased to call the pH determination or hydrogen ion concentration.

It seems, according to the views of those best qualified to speak and write on the subject, and who have proved to be the most skeptical, without a shade of doubt, that when a dyer has mastered the subject thoroughly and has bought a special apparatus constructed for conducting the tests to determine to a certainty the acidity or alkalinity of a bath; he can so regulate his subsequent dye baths that he will be able to dye lot after lot, day in and day out without any trouble, getting the same shade or any shade to a perfection that could never be obtained before with his sloppy hit-or-miss method of dyeing.

It is even said that the dyer does not have to do the testing himself, but can teach in a short time any intelligent worker. Anyone with average horse-sense will be able to find out if the bath is in the proper condition to do the work in the right way just by learning to read in the different shades produced in the test tubes the fourteen points, one of which is the happy medium to stick to in order to obtain the right results. In other words, if I understand correctly, one of those fourteen points which range from the highest alkalinity to the highest acidity, the dyer must determine which number is best suited for his particular dye bath; then so prepare his bath that that number is always adhered to, and sticking to that his troubles are over. Find the proper pH or concentration of hydrogen ions in the bath and the thing is done.

Now can anything be sweeter? Then the dyer can take out his pole and tackle and go fishing, or go hunting or attend the world series. His presence is no longer indispensable in the dye house except to draw his check every Saturday at noon.

The more I think of it the more I am determined to get on the right side of that proposition! After forty years in the dye house I feel entitled to a rest, and if this is on the level, I am surely willing to take advantage of it. The thing that I want someone to do now is to tell me just how to apply that knowledge to my work.

I have already read all the literature on the subject that I can get my hands on and it looks mighty good to me. I recently read an article written for COTTON by my friend, Harold Schroeder, in his inimitable way, which I enjoyed very much. It was as plain as could be as far as it went, but it didn't go far enough, and for the life of me I can't see where I can apply it.

When is the test of my bath to be made? We have no standing baths, the water is filtered, maybe there is some iron in it, but that cannot be avoided. I have yet to see a supply of water that is entirely free of iron except perhaps the distilled water they put in our batteries at the filling station.

When we start our dyeing in the machines no chemicals are entered except some dye aids which are supposed to be neutral, and the dyestuffs; after a while we put in the necessary Glauber's salt which is also supposed to be neutral. By this time our bath is at a boil and we shut off the steam. Is it at this time that we should test for our pH? But, at this time our bath may be blue, red, brown or what have you? Would not that interfere with the colors in the test tube samples? Undoubtedly the bath is now on the alkaline side, we try to have it so in order to dye the cotton properly, and it would be nice to have it under the proper control for pH, but how can it be done under the circumstances. When the cotton is dyed we put some acetic acid in to finish dyeing the silk. Would, perchance, this be the time to make the test? But, at this time if anything is wrong with the dyeing bath the damage is already done and the test would only aggravate the dyer's feelings. Can anyone come to the rescue and tell us more specifically how the thing is done?

The proper time during the dyeing operation when it is advisable to figure out the pH concentration has been the will-o-the-wisp that has haunted me ever since it was suggested to me as a practical method for controlling the dye bath. I think about it in my leisure moments during the day, I lay awake at night when I should be getting my much needed rest; I hate to give

• *Use* •
FRANKLIN PROCESS
Colored Yarns
The Wound Form Dyeing
Reduces Winding Costs

You Lose Less Yardage When We Dye Your Yarn

WHEN first using our service, customers who previously have patronized chain warp dyers, frequently allow the same shrinkage as for chain warp dyeing. As a result, after warping their required yardage, they have considerable excess dyed yarn on hand—tangible evidence that the Franklin Process will save yarn.

The Franklin Package is wound directly from bobbins. After dyeing, it will deliver by rotation in a spooler or creel, or over end for filling bobbins to cops or for braider tubes—in some cases eliminating one winding operation. For instance, in a cotton mill it substitutes winding Franklin Packages and warping for spooling, ball warping, and beaming. In this case, on fine count yarns, it makes a saving of from 3 to 5 cents per pound.

All these advantages are in addition to that of the better dyeing given by the Franklin Process—the complete penetration, more permanent shades, less shrinkage, no tangling or felting. If you buy your yarn from us on Franklin Tubes, we offer another saving—buying *net* weight.

Get the facts. Our book, "The Franklin Process—Its Contribution to the Textile Industry," will be sent you on request.

FRANKLIN PROCESS COMPANY

Dyers of cotton, woolen, worsted, jute, hemp and linen yarns and silk noils, also yarn spinners and manufacturers of glazed yarns.

OFFICES

Main Office and Plant at
Providence, R. I.
Branch plant at Philadelphia.

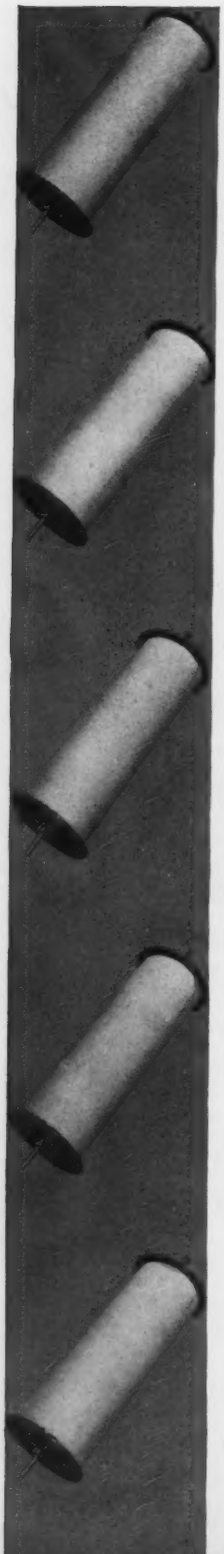
Southern Franklin Process
Company
at Greenville, S. C.

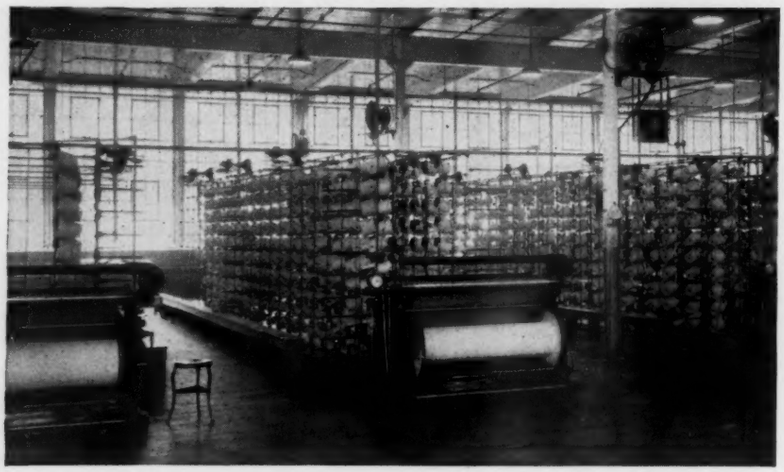
Central Franklin Process
Company
Chattanooga, Tenn.

New York Office
66 Leonard St.

FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form





UNIVERSAL
High Speed
Warping
System-

ONE of the most progressive steps in the modernization of your plant is the installation of

THE UNIVERSAL HIGH SPEED WARPING SYSTEM

Uniformly tensioned undistorted warp improves cloth quality while large diameter beams and continuous supply at high speed insure economy of operation.

UNIVERSAL WINDING COMPANY
BOSTON

Representatives in all Textile Centers

SEESONA

UNIVERSAL WINDERS

293

it up if it is such a wonderful thing. Would not someone come to the rescue? Could not my learned friend and conferee, Mr. Harold Schroeder, contribute a little more on the subject? Maybe he could give me some advice which would also benefit many other dyers; but, he or anyone else that would help us in this matter would be doing a good deed deserving to be recorded in the Annals of the Dyers Guild.

A SOUTHERN DYER.

[Readers will find a detailed discussion of pH., by Mr. Schroeder, in answer to this query on page 497 of this issue of COTTON.—The Editor.]

Making Pointed Heels on Model K.

EDITOR COTTON:

Due to the staple demand for the pointed heel hose, there have arisen problems in its manufacture that have made many a machine fixer scratch his head as to a solution, and the fact being that I am one of them, I am going to give the rest of the boys the benefit of my experience.

On the Scott & Williams K machine, the pointed heel attachment becomes very playful where the six finger attachment is used—trying to plait a silk stocking with a mercerized yarn in the pointed heel. On this type of machine the plaiting is very difficult on the going-in side of the pointed heel, due to several factors.

The pointed heel splicing finger or the six finger attachment, being the second finger from the left at the throat plate, brings this splicing yarn closer to the body yarn at the feeding point than is the case

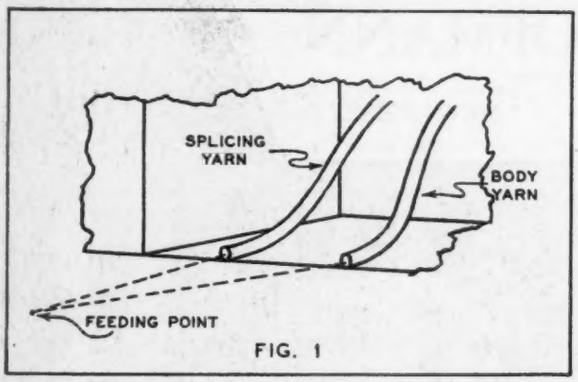


FIG. 1

with the five finger attachment. The fact being, of course, to get good plaiting, the body yarn must be separated as much as possible from the splicing yarn, as shown in Fig. 1.

Because of the fact that the separation is not as much as is needed for good plaiting, it is necessary to put an enormous tension on the body yarn to get the plaiting anywhere near perfect. When this is done it is very injurious to the finger, wearing a groove in its eye and causing in time, the cutting of the yarn, and knots catching in this groove. Not only is this bad practice, but the life of the sinkers and needles is shortened, which is quite expensive. Numerous cutouts result also in the yarn changes of heel, toe and foot, due to this tension of the yarn.

Now the problem is, how to get a fairly good plaiting without putting undue tension on the yarn to do it.

In plaiting on the Scott & Williams machine pointed heel, release as much tension as possible from the splicing tension. The body yarn must have more tension of course, than the splicing yarn, in order to plait.

The following suggestion I have found to help greatly, for bad plaiting; also, it has completely put an

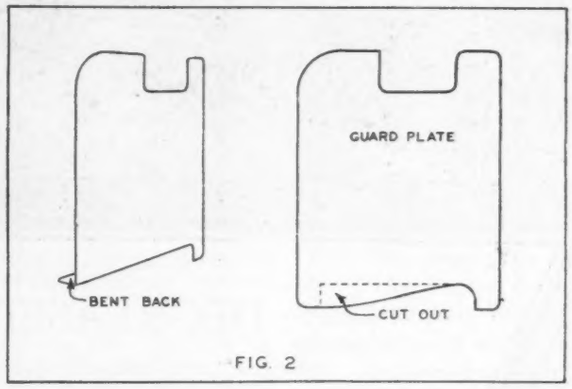


FIG. 2

end to splicing troubles in the pointed heels, such as the throw-over of the splicing yarn, getting a straight line, and when the splicing yarn misses out for one or more revolutions of the cylinder. As all fixers who have the attachments know, the welt presser is in action when the pointed heel is inserted. Put the welt presser out of action entirely when making the pointed heel. This is done by cutting the drum cam down when on the pointed heel. After this has been done, it is necessary to have some means of holding the splicing yarn from over-throwing the dial, and this is done by cutting a nick in the guard plate, as is shown

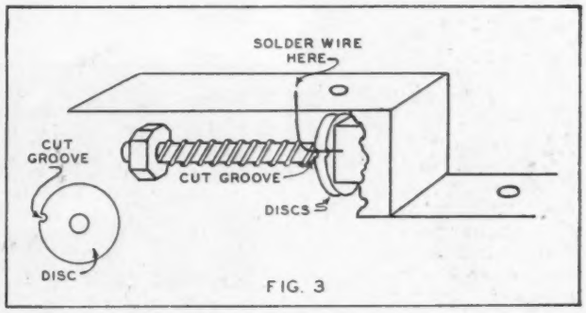
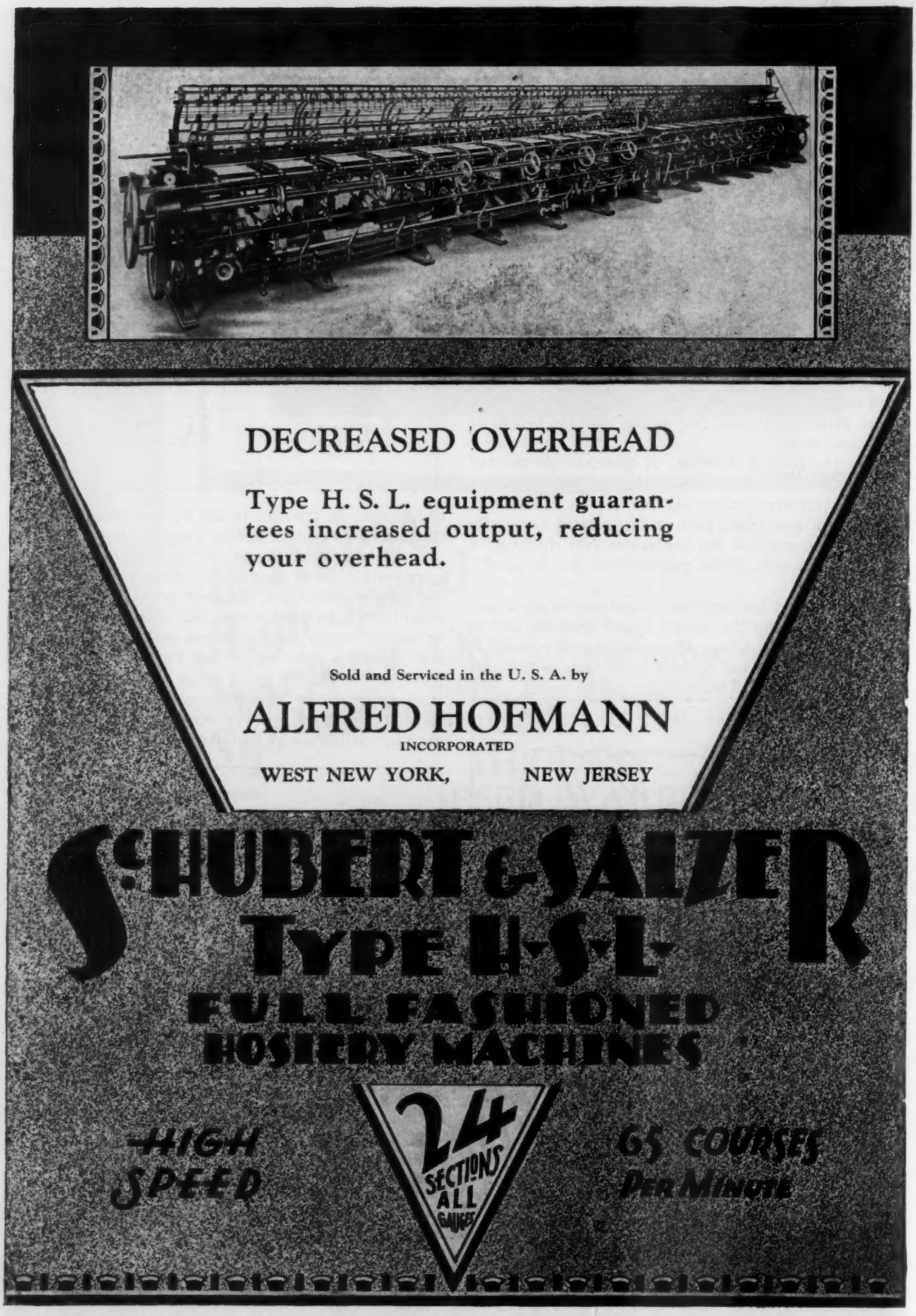


FIG. 3

in Fig. 2, and bending this cutout piece outward a little to catch the yarn on its outward throw.

It is necessary to polish well after the piece has been cut out. It will be noticed in doing this that the splicing yarn will have a freer swing and less drag on it than when the welt presser was in action, and it will work better. The only disadvantage is the fact that in case of a broken needle, warning of such would not be evident in point of hose, but it is for a short duration and is more than offset by its advantages on the pointed heel problems.

Another cause of bad plaiting and pointed heel trouble is due to the yarn tensions used. The discs and springs of the tension as a rule, keep turning when the yarn is feeding through them. This turning


DECREASED OVERHEAD
Type H. S. L. equipment guarantees increased output, reducing your overhead.
Sold and Serviced in the U. S. A. by
ALFRED HOFMANN
INCORPORATED
WEST NEW YORK, NEW JERSEY
SCHUBERT & SALZER
TYPE H-S-L
FULL FASHIONED
HOSIERY MACHINES
HIGH SPEED
24 SECTIONS ALL GAUGES
65 COURSES PER MINUTE

causes uneven tension on the yarns as they are being used, resulting in variation of stitch and tension on the yarns. A very positive solution in this problem is shown in Fig. 3. Cut a groove as shown in both discs, polish and solder a piece of wire on top of the tension, bending it around to fit into these grooves. This wire prevents the discs from moving and still leaves them free for action.

RYMI.

Disagrees with Tom Smith on Dyehouse and Dyer Recommendations.

EDITOR COTTON:

I was much interested and amused in reading Part Three of "Building a Fine Gauge Seamless Mill" which appeared in the December issue of COTTON. The advice Tom Smith gave to his friend Jones about equipping a dye-house it seems to me are impractical to say the least. While it appears that he knows how the dyeing is done to obtain good results I must say that he has the wrong slant on his selection of a man to put in charge of the work, also on the proper amount of machinery to use for a given quantity of production.

In the first instance, Tom suggests that a good laboratory should be fitted up with the equipment necessary for matching shades, then he proposes to turn the equipment over to "some bright, ambitious high school boy who didn't know much chemistry, and not too much of anything else and teach him how to match shades and select the proper combination of dyes that will go on evenly without a lot of trick doctoring and stay put."

Maybe Tom is an experienced dyer himself, and competent to do the teaching, but how is Jones to do it if he has not the competence to do his own dyeing? In my many years in the dye-house, I have yet to find an employer, unless he be the owner of a commission dye-house, who could give me the least advice on how to correct a shade or advise how to make a good match.

Then, who is going to teach the bright high school boy how to proceed in his work of learning to match shades? Of course, I admit that the present generation is a lot smarter and advanced than the generation to which I belong, and that accounts for my backwardness, but it took me a number of years under the guidance of some of the best dyers of my younger days to learn enough to hold a responsible position, and even at that there are problems cropping up in my work today which it takes time to solve, when we do solve them.

I am well aware that many mills have the dye-house in charge of incompetents, who learn every day a little more at the expense of their employer, calling in for help every time they are in trouble, and even when they are not in trouble, secure some demonstrator to teach them how to get a new shade or how to straighten up an old one which has gone wrong. I am also well aware that these demonstrators are glad and willing to go to their help, but who pays for their service? The dyestuff dealers who have to keep a string of demonstrators to accommodate these incompetents, and help them hold their jobs, certainly do not pay them out of their own pockets but must of necessity charge more for their dyestuffss, and Tom as well as Jones and myself help defray the cost. So, why not advise Jones to hire a good dyer to start with if he wants to succeed with his new mill?

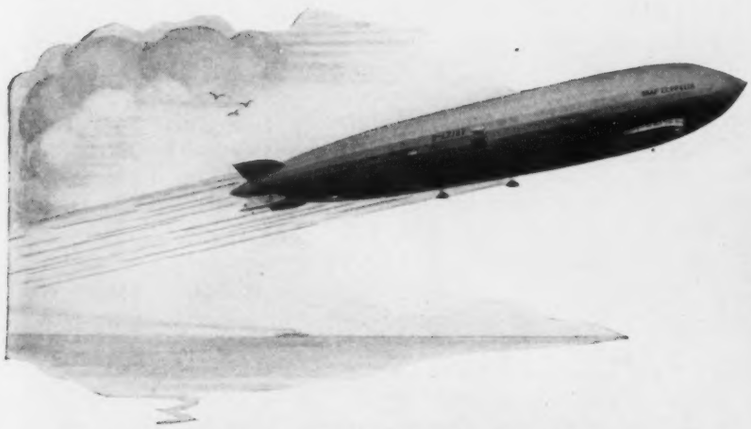
Supposing Jones finds a bright high school boy to take charge of his laboratory and dye-house, and he is able to train him in the way he wants him. He will start him in with a small salary to begin with. The boy makes progress fast and learns to put his colors on his hosiery, but even in the best regulated dye-houses mistakes occur. The experienced dyer will correct the mistakes with very little loss, the inexperienced will work his head bald and perhaps spoil a batch or two, and there goes the price of two or three months salary of a good dyer. Silk hosiery is expensive material to fool with.

Everyone can acquire experience, but it is a well known fact that getting experience is an expensive proposition in every endeavor. In this case, the expense must be borne by the mill. The little saving on the wages of the dyer may amount to a larger sum by the end of the year in spoiled goods, wasted chemicals, and dyestuffs, imperfect work, dissatisfied customers, loss in trade and many other causes.

Here is what happened in a mill where the manager was made to believe that a dyer was not necessary in his mill:

A firm of importers of silk goods decided to start manufacturing some of the goods they were importing from abroad. They advertised and found a man who claimed to be an expert in textile manufacturing, but who did not know any more than he needed in his trade as cloth finisher. To him they entrusted the management of their first mill to make a start. This man rented a floor in a large building where other small concerns were engaged in silk weaving, hired an expert loomfixer, many of the best weavers that could be found, and started operations. They were to use dyed silk in their fabrics. Instead of sending his silk to be dyed in the city which was the center of the silk dyeing and weaving industry, he consulted with a dyestuff dealer who was a good friend of his, and this man persuaded him that dyeing silk was the easiest thing in the world and he would show him how it was done. All he needed was a bright, ambitious young man, like Tom suggested.

Accordingly, the manager brought to the mill a friend of his whose occupation was serving ale and mixing drinks in a bar-room when not otherwise engaged, and told him he would make a dyer out of him, with a bright and lucrative future in the offing provided he would pay strict attention and learn what the dyestuff salesman was going to teach him. They would show the rest of the world that it was not necessary to spend half of a lifetime to learn to dye, and the high price of an expert dyer was nothing but an unnecessary luxury. (The price of a good silk dyer in those days was $25.00 per week, and it would have served that mill admirably besides making a good showing at the start.)



Why ROBERT REINER was the *first passenger* booked by the "GRAF ZEPPELIN"

It is generally known in the Hosiery Trade that our President, Robert Reiner (Dr. h' c', Heidelberg) has, since 1902, crossed to Europe several times each year. Up to the present time he has made fifty return voyages. These trips have never been made for pleasure; they are for real business.

* * *

Dr. Reiner has been like a watchman on a tower, eagerly searching for those things of vital importance to the Hosiery Manufacturing Industry and Allied lines. He believes in always being prepared; that is why he spends so much time in Germany. A number of his customers have enjoyed the hospitality of his estate in Heidelberg—near the historic Castle with its Big Tun, and they have come to know his intense application to their business interests as well as to ours.

In grateful recognition of his valuable services, the ancient University of Heidelberg conferred upon him its degree of "Dr. h' c'." He has traveled many thousands of miles over Europe investigating machines and processes which promised to promote the welfare of his customers. Twenty-five years ago he was America's "Ambassador of Good Will" to European machine manufacturers. They gladly adopted ideas based upon his practical knowledge of engineering and upon trade requirements in the United States, Canada, Mexico and South America.

* * *

Yes, it's true that Dr. Reiner paid $3,000 to fly in the "Graf Zeppelin" from Lake Konstanz to Lakehurst, New Jersey. He did not do this for fun; it was to study personally the last word in German scientific construction, so that the Hosiery Trade might benefit by his observations.

Dr. Reiner's broad experience is reflected in the EINSIEDEL "Reiner" FULL-FASHIONED HOSIERY MACHINES. We should like you to know about these machines. For *highest speed, largest output, most firsts, fewest seconds,* and for *quality of product,* they are not surpassed.

ROBERT REINER, INCORPORATED

550-564 Gregory Avenue

Weehawken, New Jersey

(In sight of the Woolworth Tower)

Founded 1903 **Phone: Union 502-503-504**

Telegraph Address: "REINER", HOBOKEN, NEW JERSEY

The dye-house was started. How much time that salesman demonstrator spent in that mill I have no means of knowing, but it must have been considerable because that barkeeper actually picked up how to degum, how to prepare (in a way) silk for ecru dyeing and souple, and to match some shades and when anything went wrong in the matching, there was a goodly portion of black in that mill and all spoiled shades were turned into black. That firm must have wondered why there was so much black manufactured, and so few colors, but as it was a big firm and could dispose of everything they got they kept quiet for a time.

Later, they started making another kind of fabric that was coming more and more in vogue, and that up to this time was imported mostly from France, except for the production of one mill started about two years previous in a small city in western New York, and run by Frenchmen.

Up to this time nothing but skein work was dyed in the new dye-house. The new article required dyeing in the piece because the fabric was so flimsy, the silk for it could not be dyed in skeins. This was a new proposition, but the demonstrator told them there was nothing to worry about; he could show them how to do it. He tried to do it, he tried for nearly two years, but, first, he did not have the right kind of dyestuff for that work; second, he had no idea how that work was accomplished. It had never before been attempted in this country, and the only place to date where that work was done successfully was in the French mill I mentioned. They had come to this country to manufacture this article which up to now had been brought over from France. They had brought a crew of French dyers and finishers, and took over a mill that had been started about three years previously, with the idea of enlarging the production and save paying the large custom duty that was put on imported silk goods during the late President McKinley's administration.

A friend of mine (we will call him Jack) was in charge of the dyeing for this mill under the American proprietors. When the Frenchmen took over the mill, Jack remained with them about four months, just long enough for him to see that he was doing it as well as the French dyers, handling the fabric in exactly the same way they did. Thinking he might learn too much of their business they thought it safer to get rid of him. He was canned, and adjourned to the city where the newly-started silk mill was having such a time trying to do something of which they knew absolutely nothing.

Of course, in this case, they could not send the new fabric outside to be dyed. There was no dyehouse in the city prepared to take that line of work as yet. Had they hired a silk dyer in the beginning he would surely have found a way, but with a barkeeper for a dyer and a demonstrator who knew little of the practical work and had not the proper dyes for such work, but wanting to keep this trade all to himself, it is obvious that no progress could be made.

After they tried every way they could think of to get the blasted fabric dyed even and presentable, they finally threw up the sponge and broadcasted an S O S for help.

Jack saw the ad in the "wanted" columns of the morning paper he was scanning every morning, and saw a good chance to put to use his newly-acquired knowledge. He answered the ad in person, convinced the manager he was "Johnnie-on-the-spot," and was hired on trial. At the conclusion of his trial he was congratulated and assured he would not need to look for another job the rest of his life. It could have been so except for the narrow-mindedness of the manager who refused to dispose of his barkeeper dyer and turn over the dye-house to Jack as he told him he should, since the work as yet was not large enough for two bosses in the dye-house.

A few weeks in that place convinced Jack that all they wanted was to learn all they could, and keep his demands down. The barkeeper's boast was that never having seen the inside of a dye-house before, he could dye skein silk as well as any dyer in the city. What he could do Jack knew better than he did. He was watching him, too. He saw that the other man had discarded some of his dyestuffs in favor of Jack's. He had bought exactly three dyes—Rhodamine B, Cyanol Blue F. F., and Azo Yellow—but the dyestuff stored in that stock-room (if it had been good) would have been sufficient to run an ordinary dye-house of ten times the capacity of this one for over a year. That salesman had dumped into their place everything he could not sell in other places. Jack with his three dyes and some that he borrowed from the other fellow's stock for shading purposes, managed to get all his dyeing done. He was going to let them know as little as possible while he felt that his position was not quite secure, and after a few weeks, feeling certain that all that was wanted of him was to instruct the barkeeper to become a dyer, and perhaps get fired in the bargain, he decided to quit. They thought they had learned enough anyway, so they let him go.

In the meantime the owners, also, had learned something of the situation. They went to the other extreme to correct it. They gave orders to their representative in France to find for them the best dyer and finisher that money could hire, and send him to the United States under a five-year contract, and when this man arrived they fired both the manager and his friend, the barkeeper dyer.

That firm in a few years managed to increase their production, build extensions and other mills, until now they are the largest manufacturers of silk goods in America, making everything from chiffon to hosiery.

Now, I want Tom to tell me this: Could they have succeeded so well with their dye-house run the way they had started? Now, then, how can Jones make a success with the dyer he advises him to bring up?

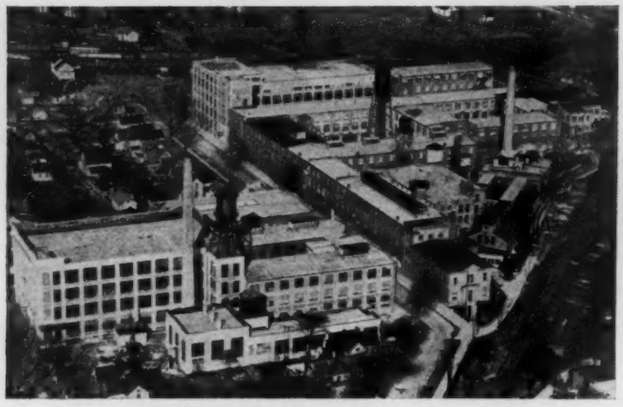
I know of another mill that started making silk hosiery a few years ago, and hired a dyer they picked up in the vicinity and did not know much about silk, but had worked with a cotton dyer for some time. In a few months they accumulated so much stock they could not move, and had all their money tied up in it. They fired the dyer and hired the best one they could afford. When he arrived the manager told him he wanted his dyeing to be 90 per cent of the selling value of his hosiery, and the new dyer was up to the requirements. By the end of the year this mill suc-

★ Butterworth Klauder-Weldon Hosiery Dyeing Machines ★

Selected, after investigation, by

Wayne Knitting Mills, Ft. Wayne, Ind.

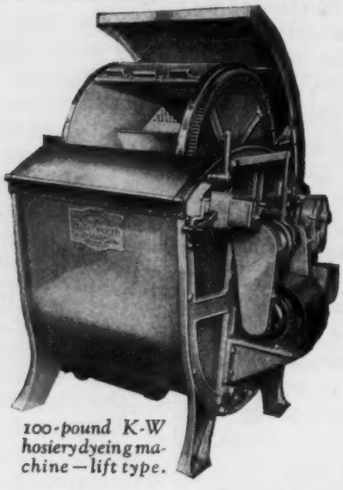
25-pound K-W hosiery dyer showing piping arrangement.



Plant of the Wayne Knitting Mills, Fort Wayne, Indiana

25-pound K-W hosiery dyer showing construction of compartments—tub doors open.

50-pound two-compartment K-W machine showing delivery and tub doors open.



100-pound K-W hosiery dyeing machine—lift type.

50-pound K-W machine—drive end view, tub doors closed.

FIRST Wayne Knitting Mills purchased one of our 50-pound rotary type hosiery dyers. This was installed in the old dye house of the company. It was tested severely under all possible conditions—this concern wanted to know more than superficial facts. Executives want to know all about costs, capacity, speed, penetration and safety in dyeing, especially in the dyeing of the sheerest kind of goods. And they want to know that the quality of their product will be maintained, and, of course, bettered if possible.

Then came orders for fifty and twenty-five pound Butterworth Klauder-Weldon machines—also for the 100-pound Lift Type machine announced in April by the Butterworth Klauder-Weldon Organization. These were for installation in the new plant.

Will You, Too, Investigate?

We feel sure that executives in other organizations will find it to their advantage to do as the executive did in the Wayne Knitting Mills: Ask questions and get the facts.

—And we shall be glad to tell you.

Also to send our literature describing fully the features of Butterworth Klauder-Weldon Hosiery Dyeing Machines—Rotary, Lift and Paddle Wheel types.

KLAUDER-WELDON DYEING MACHINE DIVISION

H. W. BUTTERWORTH & SONS CO.

ESTABLISHED 1820

BETHAYRES, PA.

PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

Southern Office: JOHNSTON BUILDING, Charlotte, N. C.

New England Office:
TURKS HEAD BUILDING
Providence, R. I.

In Canada:
W. J. WESTAWAY
Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

ceeded in gaining the confidence of their customers, and in a short time their production and sales increased more than four-fold, and the name of their brand became synonymous with good hosiery and a byword in every household in the country and abroad. Advertising will do that, Tom will say. Yes, that and the goods to back it up.

Look around, Tom, see for yourself. Look in every mill. You will find that the puny mills, those that creep along, hardly making expenses, are the ones that are satisfied with the dyeing done by a cheap dyer, sometimes no dyer at all—just a young, ambitious, high school boy; while those that forge ahead, increase their output, enlarge their mills, are the ones whose dye-houses are well equipped with a man in charge who knows how through training and experience. The dye-house is the place where 90 per cent of the selling value is put on the goods, and no ambitious high school boy is qualified to run it.

I have run this longer than I intended, but must ask the editor to be lenient and allow me a little more space to show Tom how wrong he is on the subject of equipping a dye-house.

He claims that a 200-pound and a 100-pound machine are sufficient to run Jones' production averaging 750 pounds per day. It cannot be done, not even with Tom himself doing the dyeing. The dyer who can dye five runs in a day of ten hours, every day in the year, on silk and cotton hosiery, with good matches on every lot is an unknown animal. Having dyed hosiery for the last ten years I know what I am talking about. When everything runs smoothly, and the boss offers a reward like tickets to the opera or a box of cigars, we have done it; but as an every-day occurrence, accurately and necessary, it cannot be done. The machine has to be cleaned once in a while, and that takes time away from the actual dyeing.

Then in the best regulated dye houses accidents will occur. The human element must be taken into consideration, steam may not always be as good as desirable, shades may be off a little and need correcting. With the prevalence of light shades as at present it is not the best practice to dye 140 pound lots in a 100 pound machine.

He mentioned the fact that re-dyes can be kept down to a very low percentage, and he is right, but not when one has to work in a hurry as in trying to turn out more runs than the capacity of the dyehouse outfit allows. Maybe with a third machine it could be accomplished.

This concludes my argument. I could go on telling Tom a lot of other things, but I feel I have abused the privilege and the kindness of the editor already, so I call it a day—sincerely hoping some other dyer will take up the cudgel and tell me where I am wrong.

FARBER.

Swan-Finch Appoint Supply Representatives.

Swan-Finch Oil Corporation, New York City, have announced that "Slo-Flo" textile lubricants are available from the Odell Machinery Supply Co., Greensboro, N. C.; Spartanburg Supply Co., Spartanburg, S. C.; Greenville Textile Supply Co., Greenville, S. C.; and the Atlanta Textile Supply Co., Atlanta, Ga. Stocks of these lubricants are carried at each of these points, it is stated.

Using Cone Waste in Underwear.

EDITOR COTTON:

At this time when everything is being done to cut the cost of manufacturing in the various mills, waste is a large item in the manufacture of any product and one to be watched at all times. I have worked out a system that has meant a considerable saving to our underwear mill and I believe that it is one that will help other mills to cut down on their percentage of waste.

The accompanying photograph illustrates the method I have worked for running up the cone waste from the various knitting machines in the mill. The frame is attached to the side of the knitting machine by means of bolts. The machine is a Wildman still

head knitting machine, running with eight feeds, with two threads for each feed. Eight full cones are placed in the machine and eight pieces are placed on the cross member I have mounted on the side of the machine. The operative sits on a box in front of the arm holding the small cones, and as each cone runs out he pieces the end with the end from a new piece. The ends are twisted together because this method is faster than tying knots, and we have found it is just as satisfactory.

A piece of sheet iron is curved so that it will fit over the operative's leg and is fastened to a piece of pipe that is connected to the belt shipper. This leaves both of the operative's hands free in case too many ends run out at one time, or if he doesn't get the end pieced up in good shape, he can stop the machine by moving his leg before any bad work is made.

The operator can watch each cone and after a

short while he will be able to piece up each end before it runs over the guide bar.

At the time we first started using this method of running up our waste we were making about 125 pounds of cone waste each week. Now our cone waste runs around 25 pounds each week. We use the cloth for shoulder straps for men's underwear.

The original cost on this attachment is very small and the saving in waste each week more than pays the wages of the operative who is running the machine. If he catches up he can be put onto another job until there are sufficient cones for him to work on.

If there are any points that are not clear about this system to any of the readers of "KNITTING KINKS" I will be glad to answer any questions.

CONTRIBUTOR NO. 4148.

Loose Stitches on the B-3 Machine.

EDITOR COTTON:

In a recent issue "CONTRIBUTOR NO. 4065" said that he is having difficulty in making an infant's stocking on a Scott & Williams B-3 machine, with the first three or four stitches, in the first course knit after the rib top is transferred to the footer, being loose. It would seem to me that this trouble is largely due to the kind of yarn being used. He states that he does not have this trouble when using cotton or mercerized yarns, but does encounter it on both rayon and silk. To me this indicates that the silk and rayon yarns should have some tension to help make these first few stitches tighter. These two kinds of yarn being more or less stiff and wiry makes it very difficult to get a tight stitch when the machine starts up with the ends of the yarn loose.

I would suggest using a regular Scott & Williams spring tension on the silk or rayon yarn; also having the yarn spring clamp and yarn binder hold the yarn tight. If both ends of the yarn are held tight as it is dropped and starts knitting, these first few stitches will be drawn tight.

Also, there should be enough friction on the first three or four stitches in the long butt side, and the left side cams should be kept up as close as possible without binding the needles as they pass through.

CONTRIBUTOR NO. 4072.

EDITOR COTTON:

You recently published an inquiry from a man who stated that he was having trouble on Model B-3 Scott & Williams machines, with loose or long stitches when the first long butt or the first needle taking the yarn comes in. I might suggest that such an uneven stitch could be caused by the yarn working twice on the needle it is coming off of. This will result, if he does not have his long and short butt needles divided equally. A bent wall in the machine also might be preventing the needles from drawing down evenly.

Pick trouble could also result in this difficulty. The pick might become bent, which would tip the needle over just far enough to prevent it getting its full quota of needles.

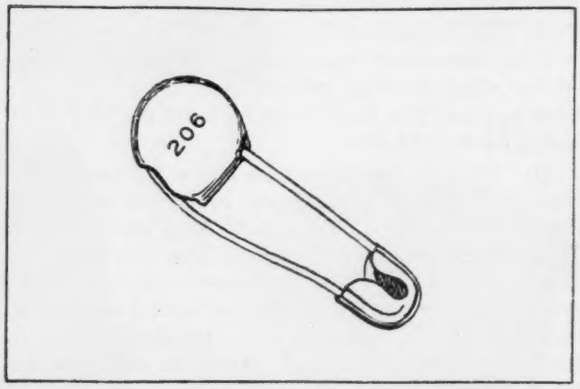
CONTRIBUTOR NO. 4068.

A System of Identifying Hose in Process.

EDITOR COTTON:

One of the hardest problems of the superintendent of a mill making fancy half-hose, or any other complicated stocking, for that matter, is to keep in touch with what is being done on the machine and to forestall any bad work being made to a considerable extent, caused by bad plaiting, etc.

I have been able to work a solution to this problem in a more or less satisfactory manner by having my fixers bring to me, regularly, a sample of the work being produced on each of their machines. For the purposes of identification and keeping the stockings separate, we use a form of safety pin, which I am showing in the accompanying illustration. You will note that the pin has a small disk on one end on which



is stamped the number of the machine. The fixers keep these pins, and as they take a stocking off of each machine they slip the proper pin through the top, and this indicates which stocking comes off of each machine.

Then they bring these stockings to me individually and I go over each one carefully to examine the work of the machine, and we discuss any defects which may be apparent in the stocking, and if it is possible for me to offer any suggestions to the fixer I do so. In this way we are able to keep up with the work of each machine, and to a very large extent, prevent any great amount of bad work. If it is desired to send any of these samples on through to the finishing department for comparison as to the way in which they board up or finish, we can keep the stockings separate by means of the pin described.

E. T. (GA.)

New Du Pont Color Bulletins.

E. I. du Pont De Nemours & Co., Dyestuffs Division, Wilmington, Delaware, have issued bulletins covering the following colors: Pontacyl Fast Blue GR Concentrated, Pontacyl Violet C4B, and Du Pont Violamine RR are three acid colors, and Du Pont Victoria Pure Blue BO is a basic color.

New Sales Engineering Firm.

Announcement has been made of the formation of Cothran-Bayles Company, sales engineers, Commercial Bank Bldg., Charlotte, N. C. The members are J. S. Cothran and A. L. Bayles, and the firm handles conveying and power transmission machinery, power plant specialties, etc.

Mitzi

EXQUISITE
HOSIERY

STUDIO HOSIERY CO., ST. LOUIS

The Exquisite Package for Mitzi

EXQUISITE HOSIERY

was "Lithographed by Kaumagraph"

THE other side of this insert is an actual example of lithography designed and executed for the Studio Hosiery Mills of St. Louis by Kaumagraph.

It was designed to attract the attention of the hosiery purchaser—to make her *want* to look at the hosiery that the box contains. It was designed to create a first impression that would do part of the selling job. And it was designed to impress the trademark of the Studio Hosiery Mills on the memory of every woman who sees it.

The same principles of good lithography used here can be used in producing your lithographic needs. These principles have been established as a result of years of intimate association with the identification, packaging and trademarking needs of many hosiery manufacturers. That is why packing "lithographed by Kaumagraph" has a new effectiveness—a new sales appeal.

KAUMAGRAPH COMPANY

200 Varick Street, New York City

Branches at:

BOSTON CHICAGO PHILADELPHIA CHARLOTTE, N. C.
CHATTANOOGA, TENN. PARIS, ONTARIO and PARIS, FRANCE

The Knit Goods Market

Complicated Situation Exists in Full-Fashioned Silks

A FAIR measure of activity in silk hosiery for women in the next few weeks is indicated in the delay of retailers to contemplate their requirements for the Easter selling. It should be more pronounced among mills selling direct to the retail trade. To many of these, February orders were in disappointingly light volume, some finding it expedient to hedge on output. It appears that mills concentrating on a single number to retail for $1.50 a pair and up to near two dollars fared not so well as large establishments presenting lines covering a range from low to moderate price.

Distribution of full-fashioned hosiery was maintained at about the usual pre-Spring level during February, but was far from being evenly divided. There was steady demand for goods for special sales, but usually a buyer's first question was "What's your price?" it is stated by manufacturers presumed to distribute through jobbers but quietly soliciting the business of retailers. It was represented by buyers for department stores and specialty shops that they were effecting clearances of colors expected to be passe in the Spring, and that a few new goods were desirable for strengthening their lines. They were doing practically no buying for Easter. A direct-to-retailer manufacturer says he has discouraged the placing of advance orders.

"We are advising our trade to buy only as they need," this manufacturer states, "assuring dealers we are prepared to ship goods within 48 hours after receiving orders. We prefer to carry stock for them to having the stores put goods in stock that might not be readily saleable a few weeks later. Besides, by pursuing this course we ship out many small orders and shipments are frequent, and we have the satisfaction of knowing from the volume of repeats just what styles are leading. We therefore looked for light deliveries in February, but have every reason for expecting a rush during the later weeks in March."

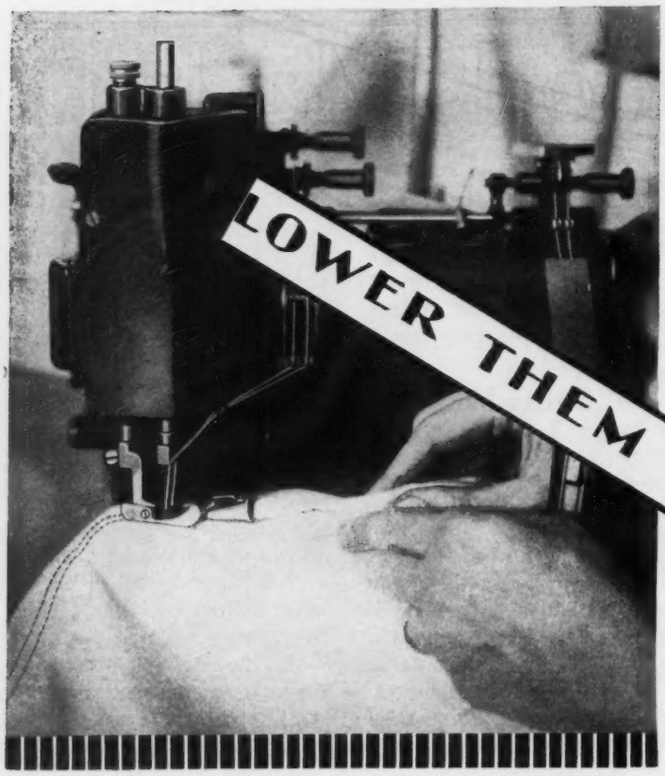
While there seems no doubt that silk chiffons will lead in sales, mills which make them exclusively are, generally speaking, not so well supplied with orders as some making only high standard medium service weight silk. This might perhaps be ascribed to fewer mills confining output to seven and eight thread hose. Where production is of both chiffons and medium service weight there appears a better balanced condition. Last month, however, most full-fashioned manufacturers might have gotten along on curtailed schedules, and quite a number probably did, for according to reports of identical mills to the Department of Commerce, output in December fell off approximately 12 per cent from the preceding month, and December last year registered only a very slight gain over the corresponding month of 1927. This far this year there appears to have been no need for knitting more stockings than in December last. There is, however, a good, healthy stage of production as measured by volume. Mills having an advantage in low operating cost have not cut down on output materially.

Strong Movement Reported in 39 Gauge Hosiery

CONSIDERING that, according to an estimate by authorities in position to know, there are in operation 4000 machines of 39-gauge, representing about one-third of the total of all gauges employed in American mills, the quantities of hosiery described as 39-gauge are amazingly small. Buyers say they seldom hear of it, from which they deduce much that is knitted on 39s is offered as 42. The fact is, practically every 39-gauge mill, so far as dependable information has been obtainable, is operating to capacity, most of them on extended work schedules. They are keeping the trade supplied with low price, quick selling stockings, passing over the counter for a dollar to $1.15 a pair.

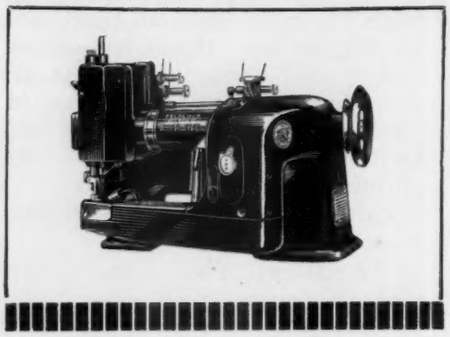
Notwithstanding some important interests declared two to three years ago that 39-gauge machines were obsolete, the demand for used equipment has been in excess of supply, as shown in reports of dealers in second-hand machinery. It is pointed out by those using them that a machine cannot be classed as obsolete so long as it produces profitably. The average cost of used 39s being about one third of that of new equipment, mills employing them obviously enjoy a comparatively low cost item to be figured in overhead.

Manufacturers of the finer grades of stockings are loud in their complaint of what is alleged to be deception in matter of gauge. It is stated on trustworthy authority that a very good seven thread stocking knitted on 39-gauge machines by a well known mill is sold as 42. It is of no less intrinsic value, it is admitted, than if it were what it is represented to be, but is a severe competitor of 42s. The stocking in question is said to be 42-needle construction, but the needles have 39-gauge butts. By this method of salving a manufacturer's conscience, 45-gauge needles are butted as 42s and, in at least one instance where this form of adaptation is practiced, hosiery made on 48-gauge machines passes for 51. More than one buyer acknowledge to be trained in hosiery technique has confessed that he cannot detect the deception where there is a difference of but two needles per inch between actual and misrepresented gauge. And the average shopper does not care, so long as construction is satisfactory in matter of fit, service and durability. So why all the flutter over gauge? say mill men and their customers, so long as results are agreeable to the latter.



SEAMING COSTS TOO *HIGH?*

FELDLOCK



"The Machine That Makes Production"

DO you know what it costs to *seam* a garment in your factory? Perhaps you, like some other manufacturers, are paying too much money for lapped fell seaming.

Wherever the Feldlock is used it lowers the cost of seaming. The reason?—*this machine turns out more work.* The Feldlock is able to do this through the development of the feed-off-the-arm principle.

The Feldlock will put your seaming on a properly low cost basis. It is a saving that gives you a production advantage.

May we send you a copy of the new illustrated Feldlock booklet?

Sole United States and Canadian Agents for
CORNELY and UNIART EMBROIDERY MACHINES

WILLCOX & GIBBS SEWING MACHINE CO.

HOME OFFICE: 658 Broadway, New York, N. Y., U. S. A.

Needles make the seam, Genuine W & G Needles make the good seam

WRITE OUR HOME OFFICE FOR SAMPLES MADE ON THE FELDLOCK, OR SUBMIT YOUR OWN FABRICS FOR SAMPLE PURPOSES

Mills and Distributors Concerned Over Anklet Fad

REPORTED heavy buying of women's socks, otherwise anklets, or pullovers, is causing more concern among manufacturers of silk hose than the matter of gauge and exploitation of irregulars for first quality. The puzzling question is, will the anklets lead to a bare leg vogue, and if so, to what extent may sales of regulation length stockings be diminished? Mill men not knitting anklets admit they appear as a winning innovation, certain to leave an impress on the business in women's and children's hose, more especially to the latter. That they are conceded to be a factor that has got to be reckoned with is indicated in a type of stocking put on the market a few weeks ago by the Cadet Knitting Co., to which the company gives the name "two-in-one nudes."

The Cadet stocking is full-fashioned silk, of regulation length but has knitted into it as an integral part what is to all appearance an anklet, which covers the instep as does the separate sock. The knitted-in anklet has a fancy top obtained by an upper and lower band or stripe, both of the same color, and between them an inch-wide band of lace work, or mesh, of contrasting or harmonizing color. The body of the sock is in either of nine colors, while the leg of the stocking above the anklet is offered in only natural flesh, intended to simulate bare legs. For the anklet top there is a range of 21 color combinations.

The indicated purpose of the two-in-one stocking is to preserve normal demand for silk hose by removing temptation to appear bare-legged in public. It has met with a hearty response from retailers and may be regarded as a promising type of foot toggery for street wear, while at the shore Summer resorts there seems likely to be as many nude as stockinged limbs, is the prediction of style observers.

A Philadelphia manufacturer of seamless silk hose is "doing his bit" toward stemming the tide to nude limbs. He has brought out a three-thread 300-needle stocking which does not have the seamed back, this, it is held, more nearly simulating the nude than the full-fashioned, which necessarily carries the seam. He reports demand accumulating for the stocking without the seam.

The Oakbrook Hosiery Mills, Reading, Pa., recently launched a line of full-fashioned silk anklets intended as pullovers. It is understood this sock is priced around $8.50 a dozen. A mill in Milwaukee is reported ready with a similar line, also priced $8.50 or thereabout. Another is quoting $7.50 a dozen for full-fashioned silk. Lower prices are expected to come out, now that jobbers are understood to have taken considerable business in mercerized anklets for the 50-cent bracket. That the market will be amply supplied is well indicated.

Numbers of manufacturers of juvenile hose anticipate a bare leg craze among girls around 10 years of age and in their early 'teens, some stating the business in seven and five eighths lengths already is feeling the adverse effect of a presumptive wide use of the anklets for juvenile wear, termed rompers, without regulation stockings. Measured by anticipation, anklets will cut deeper into the sales of children's and infants than of women's hose.

Women's Seamless Silk Stronger After Big Drop in Output

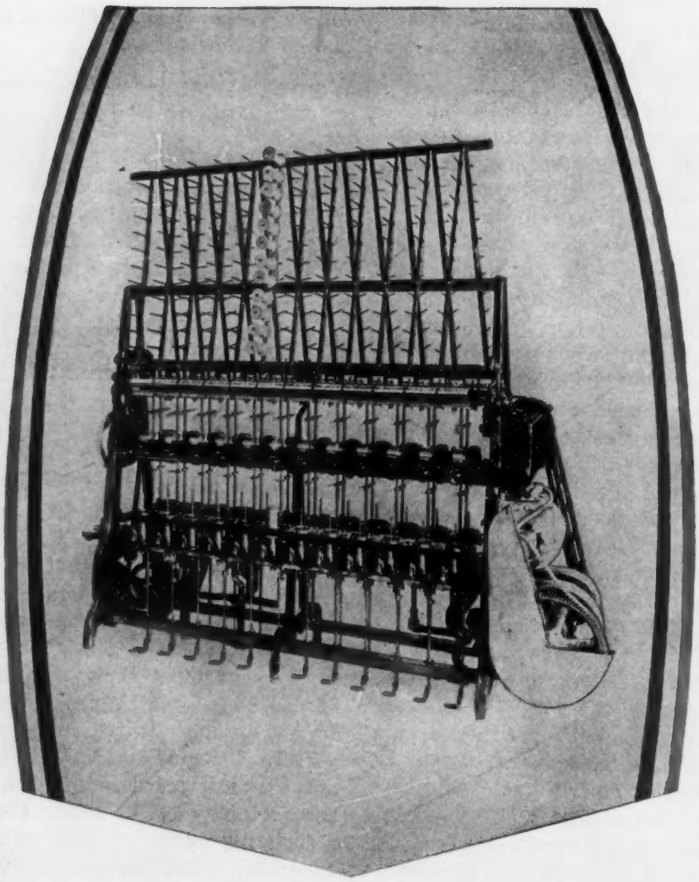
CIRCULAR knit silk hose appears in somewhat better demand, following a severe falling off, which was quite pronounced two months ago. Southern manufacturers encountered on recent visits to the New York primary markets report a substantial picking up in sales, and some have added to their equipment. Mills in Philadelphia and Reading are better engaged than for sometime. Their more satisfactory business is in 300-needle lines with pointed and two-point heels, the latter construction being regarded one of the stronger items in circular knit silk. A mill in Reading is operating on a solid 24-hour day schedule for a six-day week, and recently was not wholly suspending work in several departments on Sunday, it is stated by the management. This is one of a few exceptions in the general situation. A Philadelphia mill formerly knitting considerable rayon is operating its complete plant of approximately 175 latch needle machines in the production of pure thread silk goods.

For December there was an indicated decline of around 35 per cent in production of circular knit silk, from November, attributable probably to the usual greater demand for full-fashioned for the holidays and an anticipated lull in the markets generally at the beginning of the year. Comparing with the corresponding month of 1927, output of circular knit in December, 1928, dropped by 30 per cent, and the decline in seamless silk and rayon in combination amounted to about 27 per cent, according to reports from identical mills. Full-fashioned of this fabric construction more than doubled in output in December last, comparing with December, 1927, but showed no change from the figures for November, the increase over last year doubtless being due to Bemberg being classed as rayon in the Department of Commerce tabulations of mill reports.

Women's rayon hosiery continues fairly steady in matter of volume of output. The great bulk of it is produced in mills in the South, northern manufacturers stating it is difficult for them to operate profitably in rayons. A few have about discontinued knitting rayon, particularly as to grades designed for the lower price brackets. Lines profitable to retailers at 50 cents a pair are readily saleable to wholesale distributors, who, however, are almost a unit in resistance to a price of $3.25 a dozen at mills.

According to one distributor, a manufacturer in the Philadelphia area is knitting rayon full-fashioned hose, which sells at the counter for 89 cents a pair. He could get no Bemberg yarn about the time that fiber was making its first lap in popularity and turned to rayon, with what degree of success is not stated.

Manufacturers express conflicting opinions regarding the future for women's seamless rayons. Some who have tried to feature them with the pointed heel state the experiment was a failure, that the fiber does not hold well at the line of juncture of the novelty construction with the heel proper. It is stated by one mill head that sales have improved somewhat since



THE ATWOOD 5B SPINNER

Spins and doubles up to fourteen ends without lost efficiency in producing strand-perfect, precise, tightly wound bobbins. A large single 2-inch feed roll displaces the old style double roll. No loose or loppy ends. The individual Stop Motion is a work of mechanical perfection. Traverse and change of twists are easily adjustable and all gearing well protected. Motor or belt drive.

THROUGHOUT the Silk industry Atwood's 5B spinner is regarded as the one spinning frame indispensable to the smooth maintenance of mill production schedules. It operates efficiently and with uniformly good results on Rayon, Real Silk and Combinations. No other machine approaches its adaptability to the various daily requirements current in every mill of any size.

Many distinctive features are constantly being added to Atwood Machinery in an effort to sustain its reputation for spinning equipment par excellence. It is this continuous program of improvement that has made Atwood Machinery equal to every challenge of the industry for machinery of finer and more economical performance.

ATWOOD MACHINE COMPANY

P. O. Drawer "C," Stonington, Conn. 267 Fifth Ave., New York City

Representatives:

W. A. Kennedy, 1102 Johnston Bldg., Charlotte, N. C. E. G. Paules, 433 So. Spring St., Los Angeles, Calif.

ATWOOD MACHINERY
SILK & RAYON

giving the stocking the picot finish. There is heard some disappointment over the absence of any material expansion in distribution since the introduction of dull luster rayon, which is said, however, to be a radical improvement on delustering and may have had the effect of stalling off any decline of moment in the use of rayon for hosiery.

It is said by numbers of distributors that Bemberg full-fashioned is moving less lively than some months ago. Facts to support or contradict this view are not at hand. The Burd Knitting Mills, leading wholesale-distributors of the Berkshire Knitting Mills' Bemberg number, said a few weeks ago the firm was short of immediate delivery Bembergs and that all orders then being accepted were taken with the understanding shipments could not be promised in less than two weeks.

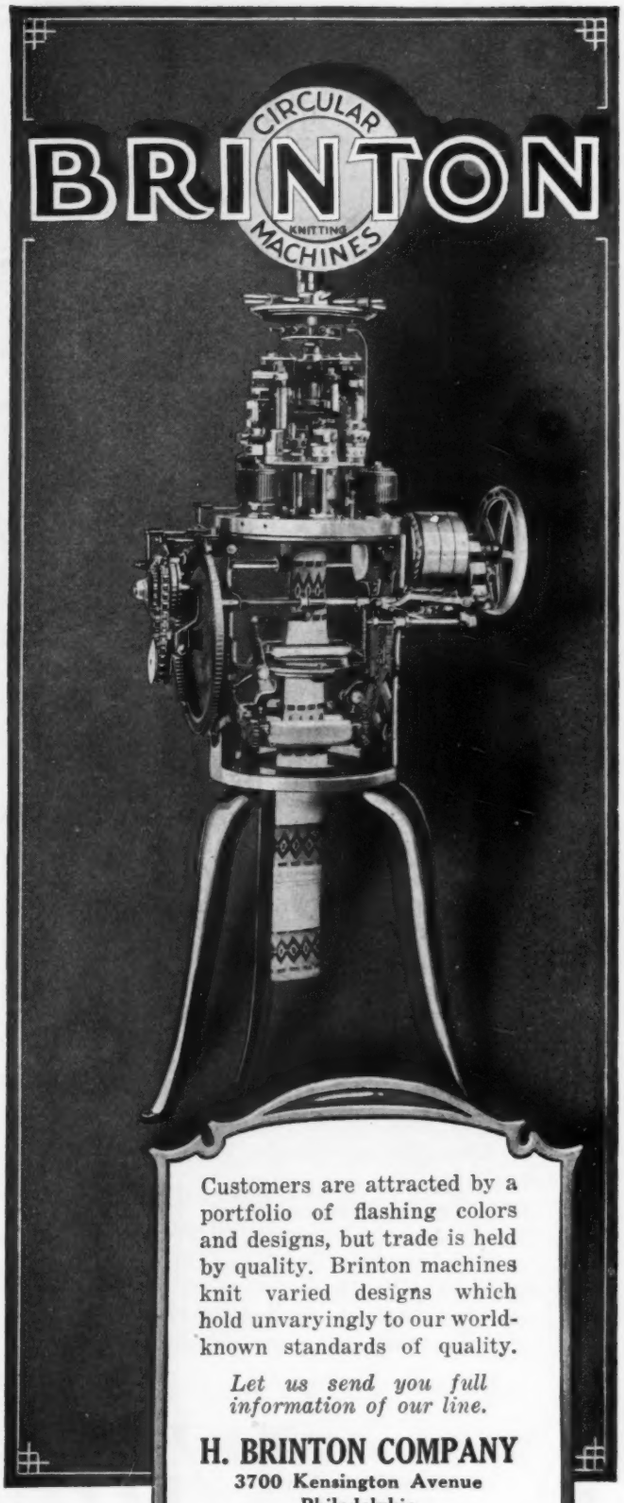
Men's and Children's Hose Show Some Unsteadiness

A FEELING of dissatisfaction has crept into the market for men's fancy half-hose. Price instability is the chief cause of complaint, sales being maintained in strong volume. It seems production had been carried to a point where large chain store organizations found it an easy matter to locate fancies which they could sell profitably for considerably less than average single unit store could realize. This eventuated in pressure from wholesalers for recessions which have gone far toward elimination of profits for mills and single unit dealers. The long time popular 50-cent sock in design appears hard hit in competition, jobbers insisting they cannot pay more than $3 a dozen. With manufacturers offering good grades of fancies rather freely, resistance to adequate prices showed more pressure. Mills now are feeling more keenly than ever the result of overproduction.

It is apparent the chains have taken over a lot of business that formerly passed through jobber hands. This has had the effect of causing many jobbers to place orders on a more conservative basis and, in view of frequent pattern changes, for immediate delivery for only short periods. Coarse gauge fancies selling in chain stores for 20 cents a pair, of types for which retailers had been getting 25 to 35 cents, appear a large factor in the upset condition in the primary markets.

Some important interests would be not surprised if, as a result of the disturbed situation in fancies, dealers push solid colors. Several manufacturers of seamless silk socks say dealer demand shows slight but steady increase, and at least one recently entered the full-fashioned field, in which it was reported some weeks ago there was a better call for solid colors, mainly black, navy and either of a narrow range of grays. A trademarked line of mercerized in black is reported by one wholesaler to be moving very satisfactorily in some sections.

Trading in children's hose continues at a fairly good stage, although suffering some interruption by reason of wholesalers taking very kindly to offerings of many mill lines of anklets. This is viewed as heralding a distributor belief that young misses will adopt them, to the exclusion, largely, of regular length hose, since there already existed a drift to bare limbs



Customers are attracted by a portfolio of flashing colors and designs, but trade is held by quality. Brinton machines knit varied designs which hold unvaryingly to our world-known standards of quality.

Let us send you full information of our line.

H. BRINTON COMPANY
3700 Kensington Avenue
Philadelphia

FOREIGN AGENTS
Great Britain and the Continent: Wildt & Co., Ltd., Leicester, England.
South America: M. Buchsbaum, Calle Alsina 1814, Buenos Aires, Argentine Republic.
Australia: J. H. Butter & Co., Sydney, Melbourne.
China and Japan: Elbrook, Inc., 50 Peking Road, Shanghai, China.

Make your trademark

STEP OUT *and* STAND OUT

with VULCANART

DRESS up your trademark in the smart modern style . . . it pays . . . earns new attention for your product and yourself.

It's a simple matter. Vulcanart, the modern marking method, makes handsomer and more profitable trademarks possible. It reproduces fine lines as well as masses . . . gives you a choice of an amazing wealth of colors . . . deep, rich tones . . . or light, delicate shades . . . makes your trademark as *you* want it to be.

And Vulcanart requires less time and less heat energy to apply . . . it does not require highly skilled labor . . . it will not scorch material to be marked. Three important advantages over other transfer methods.

Special ink and special paper are the secrets of Vulcanart success. Much laboratory research and experiment have gone into the creating of just the right combination—a combination found only in Vulcanart. Look for the pink paper composition—it indentifies the genuine Vulcanart marker.

From Rough Sketch to Finished Marker

Besides creating the Vulcanart marker, we are prepared and equipped to make a modern trademark for you. Design it in our own studios . . . submit rough sketches . . . and finished artwork . . . then *register the design* . . . and next supply you with finished markers, ready for application. Our experience and facilities enable us to do this work at low cost, while relieving you of a great deal of bothersome detail.

Write us today for further details concerning this really remarkable trademark service.

American Trade Mark Corporation
254-256 West 31st Street
New York, N. Y.

Vulcanart
THE MODERN MARKING METHOD

If it's worth making, it's worth marking

and quite extensive use of seven-eighths in even wintry weather. This is regarded as foreshadowing a wave of nudity from the line of the anklet. Yet there is a wide open outlet for certain types of sports lines, as indicated in the recent experience of Frank E. Morris.

Mr. Morris, who was the general manager of Pilling & Madeley, Inc., until the company decided upon liquidation two months ago, took over its late model machines and proceeded to make and offer "Pilling & Madeley" hose. He states that within a week after first showing of samples he booked the plant up for two months. By the use of modern equipment, and being rated one of the foremost designers, he brought out a line distinctive in its class, which is given as one explanation for rapid fire selling. If fancy three-quarter and seven-eighth hose can be made in patterns more attractive than the fancy tops of anklets, some say, the latter may make less headway among juveniles than has been indicated. But anklets have injected a big question mark into the markets for young misses' hose, leaving, however, the outlook for continuance of a strong outlet for boys' popular price golf hose undisturbed.

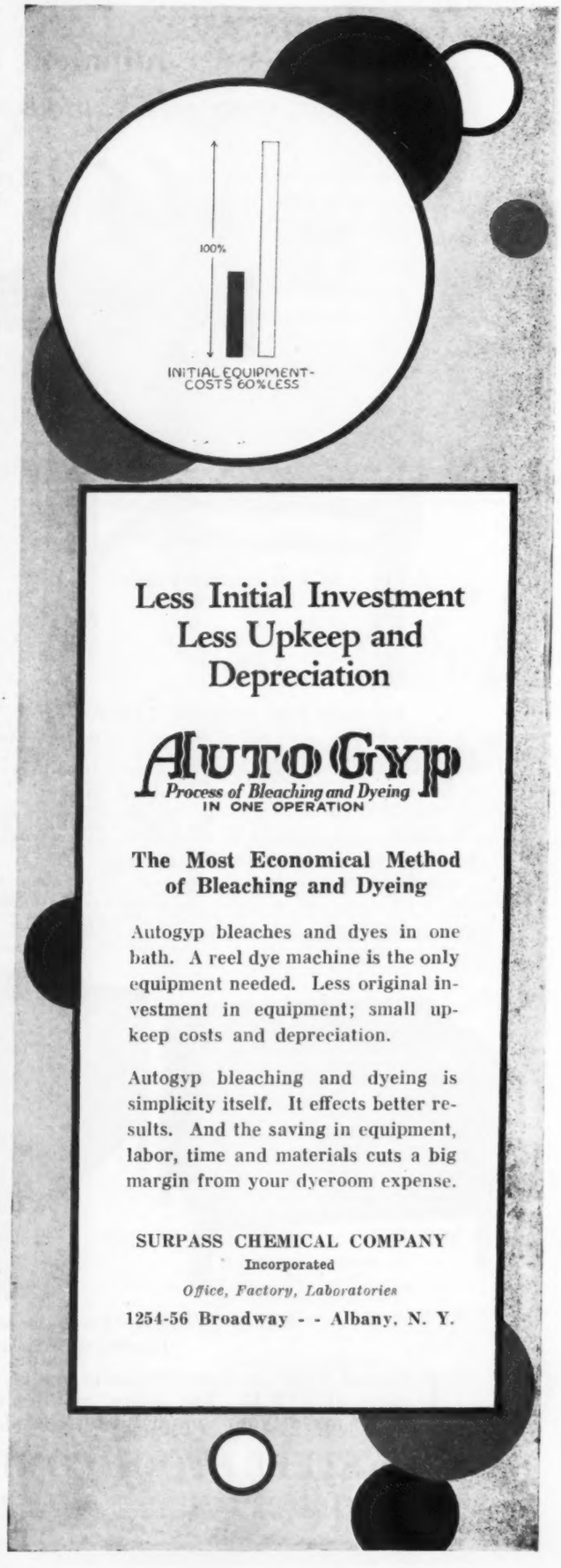
Carrying the anklet question further, what is going to be the effect on the situation in relation to infants' straight leg socks? One trade view frequently heard is that for youngsters of two to three years and older, anklets will to a considerable extent displace five-eighths socks of both straight leg and fancy top construction. The innovation seems to have set primary market interests to thinking hard while the Spring and Summer vogue is in the balance.

Stronger Market Looming For Men's Heavy Underwear

WHEN first prices for men's heavy weight cotton ribbed underwear were named for 1929 there was caused some consternation in the trade by a leading southern mil coming out with quite a markdown from the preceding year's list. The mill in question was roundly criticized for what were regarded generally unnecessarily low figures. Developments since the opening make it appear that its course averted severe price competition, for already there is evidence of some manufacturers underselling the market as it then appeared to be established, on a level satisfactory to wholesalers generally.

F. W. Slaughter, manager of the underwear department of Young Smythfield Co., Philadelphia, distributing nationally, may be quoted as saying prices of heavy weights were low enough at the opening to be attractive to wholesalers and retailers. "We contracted for fair quantities," he stated, "and since have felt out a large part of our retail trade. We find dealers voicing approval of quotations on standard lines and disposed to trade earlier than has been the policy in recent years. In fact," Mr. Slaughter continued, "we already have booked some Fall business, and I look for substantial business in heavy weights throughout the distribution season."

Mr. Slaughter's opinion is given weight by the fact that for many years he has been the underwear buyer for the largest wholesale house in Philadelphia


100%
INITIAL EQUIPMENT-
COSTS 60% LESS
Less Initial Investment
Less Upkeep and
Depreciation
AUTO GYP
Process of Bleaching and Dyeing
IN ONE OPERATION
The Most Economical Method
of Bleaching and Dyeing
Autogyp bleaches and dyes in one bath. A reel dye machine is the only equipment needed. Less original investment in equipment; small upkeep costs and depreciation.
Autogyp bleaching and dyeing is simplicity itself. It effects better results. And the saving in equipment, labor, time and materials cuts a big margin from your dyeroom expense.
SURPASS CHEMICAL COMPANY
Incorporated
Office, Factory, Laboratories
1254-56 Broadway - - Albany, N. Y.

....for Knitters' Equipment Specify "ANGLE STEEL"--

a cut-cost, space-saving, protective and life-time Investment!

No. 24-24 Bar Topping Table

KNITTING MILLS will find ANGLE STEEL Equipment built to their modern and specific needs.

Cut-Cost—these pieces speed production, lessen the chances of defective workmanship and enable the workers to do more and better work.

Space-Saving—note the many features of ANGLE STEEL Equipment, all designed and built for top-efficiency in the minimum of space.

Protective—This equipment is round-cornered and smooth at every point to protect the work in process. This allows the worker to produce better work at a lower-per-unit cost.

Life-Time Investment—Only the best sheet and angle steel, strongly spot- and acetylene-welded and finished with a durable rich olive-green lacquer is used.

NO. 24-24 BAR TOPPING TABLE

Size: 24 in. wide x 24 in. deep x 30½ in high, over-all. This Bar Topping Table represents the latest improved design in this type of equipment. Suggestions for improvements from prominent mills have all been incorporated, and we are proud to offer this up-to-the-minute pattern. Top of heavy twelve gauge, 2 in. turned down edges. Top mounted on heavy angle frame and legs. Legs and bottom angle pieces of 2-in.x2-in.x⅛-in. angle. Round pipe foot rest, 6-in. off from floor. Drawer size: 14 in. wide x 18 in. deep x 3-in. high, with crosswise partition. Wood block, leather covered, fastened to leg. Furnished complete with all parts, as illustrated. All corners and edges constructed with extra care as pertains to smoothness. Finished in durable, attractive olive-green lacquer throughout.

No. 36-12 Knitters' Bench

NO. 36-12 KNITTERS' BENCH

Size: 36 in. wide x 13½ in. deep x 42 in. high overall. Built of high grade smooth black sheet steel throughout, finished in a durable, rich olive-green lacquer. TOP: May be had of black sheet steel finished green, or monel metal left in natural polished finish. Top has inset yard stick at front. Built with extreme care throughout to assure all edges, seams and corners smooth. Bottom compartment enclosed with double sliding doors. Water-tight pan with perforated cover furnished with each bench. Size of water pan: full width and depth of compartment by 3 in. high.

No. 27-17-16 Knitters' Steel Boxes

NO. 27-17-16 KNITTERS' STEEL BOXES

Size: 27 in. long x 17 in. wide x 16 in. deep, inside measure of box proper. Box part of 20-gauge, high-grade extra-smooth black sheet-steel. Overall height, including legs, 22 in. Top edges of box are rolled and all corners hemmed so that absolutely no sharp edges or seams are in the box or at the top. Also, special care is given to outside of box for smoothness so that silk or other knit goods will not be ruined. Spot- and acetylene-welded construction. Finished throughout in durable, rich olive-green lacquer.

Send for Catalog "C" listing several hundred items of ANGLE STEEL *Equipment for Factory and Office.*

[*Special Work to Your Order* is one of the features of ANGLE STEEL Equipment SERVICE. The entire facilities of our Engineering and Manufacturing Staffs are at your command for the plan and proposal of Special Equipment.]

ANGLE STEEL STOOL COMPANY, Plainwell, Mich., U.S.A.

Southern Representative: Mr. Gordon W. Morton, 1002 Magnolia St., Greensboro, N. C.
Philadelphia Representative: Parent Metal Products Co., No. Fourth and Cherry Sts., Philadelphia, Pa.

and is recognized as a market authority, invariably leaning to the side of conservatism. Conforming to his view are reports of a brisking up in men's heavies in the better grades, while low end goods appear to have sustained a jolt. It is in that division that manufacturers are pushing for volume, competing among themselves and, it is stated, accepting prices which indicate they are unmindful of the unit margin of profit.

A Tennessee mill regarded as one of the stronger units in what often is referred to as a group of mills took the market by surprise early in February by announcing it had sold up its production for the early delivery period. This was doubted by an important buyer, who proceeded to check up on the mill, whose line he had been handling for some time. "I sent the mill an order, for delivery in March," he states, "and was promptly advised that it had nothing more to sell for such delivery. As I gauged the situation at the time, I thought the mill would be glad enough to receive my order, although it was not a large one. So, I have reached the conclusion that more underwear has been contracted for than most of us have been estimating."

As a general proposition, the market is sluggish. It is therefore more significant that prices for standard lines are holding firm, despite the cutting in the low end division. Buyers as a rule have been taking in lighter volume than last year. This may be ascribed to climatic conditions, more than two thirds of Winter having gone into the past without registering heavy weight underwear temperatures in the Central West end eastern seaboard states. Trustworthy reports are that retailer stocks were well cleaned up during the previous open winter, from which it may be deduced that last year's stage of distribution will be at least maintained this year. There have been heard veiled threats that if any great number of buyers assume to drag the market for price concessions, mills will limit production to actual orders, putting on distributors the onus for disruption of shipments.

Movement of Summer underwear is maintained at a steady pace, but in the confusion over style it would be difficult to single out many spots conspicuous for activity. Rayon athletic shirts are in apparently improving demand, but not to an extent to interfere with sales of cottons, which represent the really active class in athletic shirts. An effort to push rayon union suits appears to be uphill work, since cotton suits have been reduced in weight to almost that of silk and are available from high class mills in some especially appealing construction. It would appear to a close observer that if manufacturers of cotton underwear were to unite in putting back of it the same push that is given to rayons, it would stage a comeback. It is the one fabric that has not been matched for absorptive quality, and if it is pink and delicate shades that sporty men want, there should be no great difficulty in providing acceptable colors, as dainty relatively as fine combed or mercerized yarn fabric. Manufacturers appear to have let men's cotton underwear slip by default.

Several leading manufacturers of women's cotton underwear have had a good reorder business in me-

SINGLE CONTROL
SINGLE RESPONSIBILITY

IT IS because every step from selection of cotton to the final processing in the making of Standard Mercerized Yarn is controlled in our own plants, that Standard Yarn is always of uniformly dependable quality. Perhaps this explains the long and continuous growth in demand for Standard Yarn.

STANDARD-COOSA-THATCHER CO.
Chattanooga, Tenn.

Sales Offices: Lafayette Bldg., Philadelphia
456 Fourth Ave., New York
Greensboro Bank & Trust Bldg. Greensboro, N. C.
Adams Franklin Bldg. 222 West Adams St. Chicago, Ill.

Canadian Representative:
Wm. B. Stewart & Sons, Ltd. Toronto-Montreal

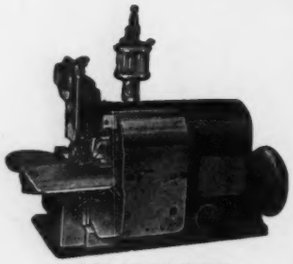
Standard
MERCERIZED YARN

MERROW

REG. U. S. PAT. OFF.

HIGH SPEED TRIMMING AND OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR USE ON KNITTED AND WOVEN FABRICS OF ALL KINDS

———200 VARIETIES FOR 200 PURPOSES———



CLASS 60 MACHINE

INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.

Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread FLAT SEAMING on Rayon Underwear.

Let Us Demonstrate the Work of These and Other Machines on Your Own Fabric.

THE MERROW MACHINE COMPANY

16 LAUREL STREET, HARTFORD, CONN.

G S N C

GOC

GOLD CIRCLE NEEDLES

NO MORE ROUGH RIVETS

Our new needle with the rivet Brazed to the cheek does away with them. The needle lasts 3 times as long.

More and Better Knitting

because they are always smooth.

If you have not seen these improved needles or tried them, ask for samples.

Patent applied for

MANUFACTURED BY GRANITE STATE NEEDLE COMPANY LACONIA, N.H., U.S.A.

dium weights and have booked some Fall orders. One concern states the outlook is for a larger volume of sales for next Fall than it had for the Fall and Winter of 1928. This establishment is having a good run on 14-cut combed garments, and a few weeks ago was accepting new orders only for deliveries not before April 1st.

Women's rayons show progression in fabric and finish and in the coming season will be exploited more vigorously than ever. A line that is promising of making a hit is from a Philadelphia manufacturer who buys the fabric. He has given to it certain details in trim and finish that seem certain of making a strong appeal. The fabric when wet, it is stated, shows greater strength than cloth in the absolutely dry state, knitted of the same producer's rayon of a year ago. Another outstanding mill line is of super rayon. One large distributor gives to his trade an unqualified guarantee of its tensile strength, durability and perfection of fabric.

Staple Sweater Lines Move to Stronger Position

WOMEN'S light weight worsted ribbed sweaters, mostly of the pullover type, have been well contracted for in Spring lines, sales, it is generally reported, exceeding those of last year. Knitters are using more of single fine count yarn, and some have had much success with zephyr for ribbed garments.

Taking a broad survey of conditions in the sweater trades, it looks as if a new high record for distribution will be made this year, and that on the whole buyers are giving most attention to the better grades for popular prices. Manufacturers with low price as an objective seem to have gone too far in cheapening, by the use of merino yarns with an unusually small per cent of wool. They appear to have led the procession in price cutting and are reported not getting the looked for volume of business.

Shakers are rated by some a dubious proposition. One leading manufacturer formerly stressing them has discontinued the line, stating more satisfactory results are to be had in the field of sports coats, which undoubtedly have the call at the moment. On the other hand, one of the old timers among the shaker mills which last year brought out a sports line has given it up, on the ground prices have been cut to the bone, whereas he is able to maintain prices for his shaker line, going to practically the same trade for more than a decade. The experience of the two mills referred to is fairly representative of the mixed sentiment found in the primary markets. But as mills as a body are operating at from four or five days a week to overtime, the situation as to sweaters seems not far from 90 per cent satisfactory—it never reached 100 per cent in the industry's palmiest days.

Distribution of bathing suits may be said to be at about par, reckoning from that of 1928. Some reorder business is coming through, while deliveries from some mills specializing in high standards are somewhat in arrears.

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

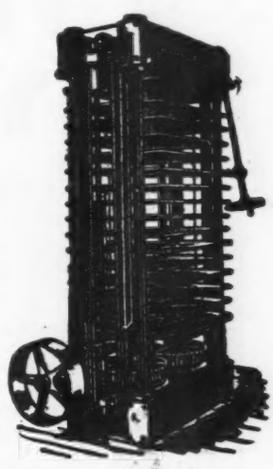
Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and chiffon hosiery.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.



RELIANCE
Hot Plate Screw Press
FOR
Hosiery and Underwear
Write for Catalog and Prices
Reliance Machine Works
FRANKFORD, PHILA.

ABERFOYLE MANUFACTURING COMPANY

MERCERIZED YARNS

JAMES BUILDING
CHATTANOOGA, TENN.

418 FRANKLIN STREET
READING, PA.

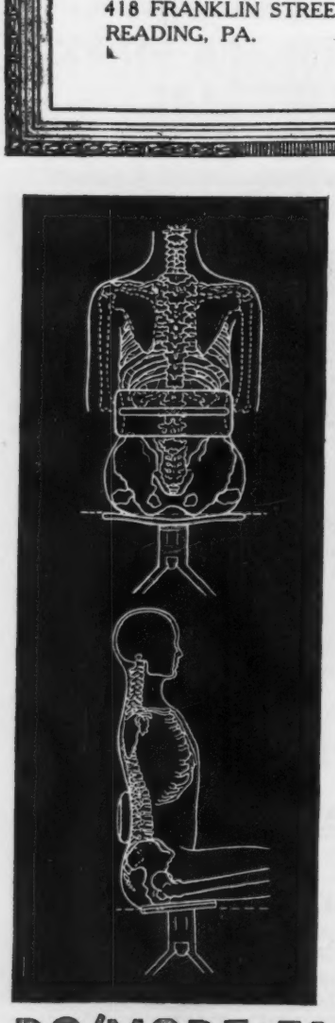
MAIN OFFICE
123 So. BROAD ST.
PHILADELPHIA

Mills
CHESTER, PA. BELMONT, N. C.

323 SO. FRANKLIN ST.,
CHICAGO, ILL.

MANGUM STREET,
HIGH POINT, N. C.

WESTAWAY BUILDING
HAMILTON, CANADA



The Needs of Your Body

Determined its Design

SCIENTISTS who know the needs of the human body designed Do/Mores. They knew that the healthiest posture was a natural posture — nerves, muscles and organs unstrained. So the Do/More was designed to the human body—it is entirely adjustable so as to apply to *all* human bodies. The back rest, rigid as it *must* be for proper support, fits the small of the back snugly. The concave seat, slightly tilted back, makes the occupant sit with weight evenly distributed, nerves and muscles free.

FREE Test Gives Conclusive Proof

The value of Do/More Correct Posture can be definitely proved—workers seated in Do/Mores are healthier, more efficient. Costs are cut—profits increase. Clip and mail the coupon at the right for complete information regarding the Do/More Free Comparative Test Plan.

DO/MORE CHAIR CO., ELKHART, INDIANA

Do/More No. 010
for factories, seat height adjustable from 15 to 20 in. from floor. Veneer seat and back rest. Legs ¾ in. tubing.

CORRECT Posture
The Do/More chair induces the correct posture and promotes the Health.

INCORRECT Posture
When the spine is slumped you breed fatigue.

DO/MORE · FACTORY · SEATING

Mail With Your Letterhead

To DO/MORE CHAIR CO., 261 Monger Block
Elkhart, Indiana

☐ Have the "Do/More Man" near us call with the complete information regarding your FREE TRIAL plan.

☐ Without obligation to us, please explain the Do/More Idea of Factory Seating.

Check Service MOST VALUABLE to You NOW!

Mueller's Mill in Pennsylvania

William F. Mueller, until the beginning of the year selling the full fashioned hosiery machines of the Textile Machine Works, Reading, Pa., has placed a contract for twelve Reading 45-gauge machines as the initial installation in a mill which he is building at Robesonia, Pa., to be conducted as the Robesonia Hosiery Mills.

Among the Knitting Mills

MAGNET Knitting Mills, Inc., formed to take over the properties of the Magnet Knitting Mills in Clinton and Coal Creek, Tenn., plan an expansion program to involve the expenditure of a bond issue of $1,500,000, which has been authorized. Plans for additional buildings have been made by J. E. Sirrine & Co., Greenville, S. C., engineers. Additions to the manufacturing equipment will be made which will make the properties among the ten largest full-fashioned hosiery manufacturers in the country. C. S. Kincaid is president of the company, with T. Asbury Wright, Jr., of Knoxville, and J. P. Voorhees, vice-presidents.

Cadet Knitting Company, of Philadelphia, Pa., will establish a full-fashioned hosiery manufacturing plant at Columbia, Tenn., it is announced, for which an issue of $2,000,000 15-year 6 1-2 per cent sinking fund debentures, 5,000 shares of cumulative 7 per cent preferred stock, 50,000 shares of Class A preferences $2 cumulative stock and 250,000 shares of common stock has been authorized.

Durham Hosiery Mills, Durham, N. C., will add fourteen full-fashioned machines to the equipment of the Marvin Carr mill of the company, at a cost of approximately $120,000.

O. S. Grove, Edgar Yoder and C. S. Grove, Jr., have organized the Hickory Grove Hosiery Mills, Hickory, N. C. Men's fancy silk, rayon and cotton hose will be manufactured, it is stated.

Chatham Hosiery Mills, Inc., Siler City, N. C., have been placed in operation. J. A. Thompson, of Burlington, W. E. Evans, of Burlington; J. L. Evans, of Raleigh; and J. W. Siler and J. Q. Seawell, of Siler City, are interested.

Lake City Hosiery Mill Co., Marion, N. C., has been organized, and 24 Banner machines, making fancy golf hose, have been placed in operation. J. M. Lichty is president and superintendent.

The knitting department of the Icemorlee Cotton Mills, recently acquired by the Johnston and Belk interests of Charlotte, has been purchased by the Manetta Mills, Lando, S. C. R. A. Willis, Sr., is general manager.

Superior Hosiery Company is the latest hosiery mill to be established in High Point, N. C. It is understood that 50 machines have been installed. J. A. Morris is president; Dr. O. B. Bonner, vice-president, and J. J. Dell secretary-treasurer.

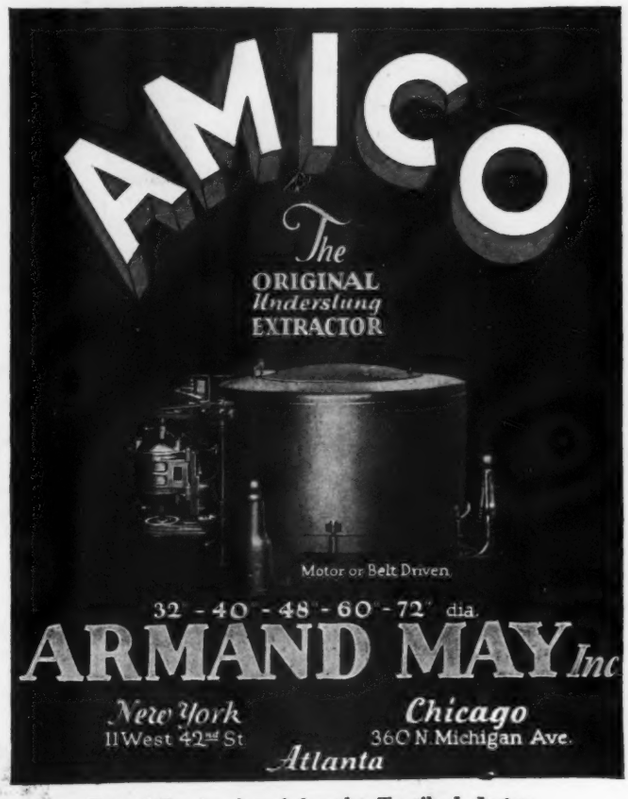
B. R. Hunter is president of the Black Mountain Hosiery Mills, recently established at Black Mountain, N. C.

McPar Hosiery Mills, recently established at Marion, N. C., are operating 54 machines manufacturing men's half-hose. Reid McCurry is general manager.

Rock Hill Hosiery Company, Rock Hill, S. C., will establish a full-fashioned hosiery plant. Lockwood, Greene, Engineers, have charge of the engineering work. The building will be one-story, of brick, steel and concrete construction, 150x400 feet.

Lengel-Fencil Co., Reading, Pa., have let contract for the construction of the seamless hosiery plant which they will erect at Anniston, Ala.

Tower Hosiery Mills, Burlington, N. C., will install 12 full-fashioned machines in a building 62x140, on Broad Street.

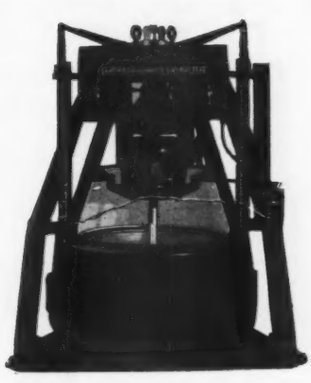


Especially developed for the Textile Industry

AGENTS

The Makenworth Co., P. O. Box 628, Greensboro, N. C.

Laundry Mach. & Textile Co., P. O. Box 1523, Atlanta, Ga.



As Accurate as a Swiss Watch

IF ten minutes extracting time gives you best results for the operations which follow—then you want to be sure that the extractor runs exactly 10 minutes and not 8 or 12 minutes. You can be sure with the Humatic Hydro Extractor, for the timing mechanism is as accurate as a Swiss watch. The Humatic automatically stops at the conclusion of the correct and predetermined extracting period. Write for details.

The American Laundry Machinery Co.

Specialty Dept. C. **CINCINNATI, OHIO**

THE CANADIAN LAUNDRY MACHINERY COMPANY, Ltd.
47-93 Sterling Road,
Toronto 3, Ont., Canada

No Floating Threads Assures Fewer "Seconds"

Unfailing pick-up of thread at proper time has always been uncertain in the floating thread method of producing diagonal stripes and figures. On the Standard Hosiery Machine, patterns like the one illustrated can now be reverse plated, without use of floating threads, due to a new positive method of needle control.

Since eight steps and six colors are available, unlimited patterns can be produced on this machine.

Write for complete information about our Attachment 31,—no obligation.

STANDARD-TRUMP BROS. MACHINE CO., Wilmington, Del.

DISTRICT OFFICES:

366 Broadway, New York City
James Building, Chattanooga, Tenn.

"QUALITY YARNS"

Processors of Crown Brand

RAYON

Colored and Bleached on Cones, Cops, Spools and Skeins.

Direct, Sun-fast, Tub-fast and Indianthrene Dyes.

The Yarns Corporation of America

290 Fourth Ave., New York City — Spartanburg, S. C. — Brooklyn, N. Y. — **New York** Allentown, Pa.

THE Textile Machine Works, Reading, Pa., has sold its production of Reading full-fashioned hosiery machines to March, 1930, according to a person authorized to speak for the company. As the output is 100 machines a month, it would appear that by the middle of next year there will have been an increase of at least 10 per cent in potential output of full-fashioned stockings, for, according to a conservative estimate by a recognized authority, there were in commission last year 12,000 machines in American mills.

The estimated increase in potential production leaves out of the accounting the number of machines of foreign manufacture that are coming in, and ignores the equipment that, in the regular order of things, will be scrapped during the year. But it may be said without fear of contradiction that the present output of such machines is far less than that of the German machines under contract, to be installed in 1929. In current installation of domestic machines there is an indicated preponderance of 45 gauge.

New England Mill Situation.

(*Continued from page* 512.)

ters of manufacture a distinct change has come about in popular sentiment toward local industries and local taxation. When the tariff hearings were opened on the textile schedules at Washington representatives of unions, municipal governments and Chambers of Commerce joined with manufacturers in presenting the case for added protection to the industries. In the case of the appeal of fine goods manufacturers for a rectification of the textile schedules whereby combed yarns averaging above 60s will be put on the relative basis of protection afforded numbers in the lower group, there was no dissension of opinion on the part of anyone in New England.

Should this change be made so that it may again become profitable to produce the finest yarns in this country's mills, say numbers running from 70s to 140s, nearly 2,000,000 spindles that have been diverted to lower count yarns will be changed over to the higher counts. This in turn will relieve a great deal of the pressure on the fine goods mills using from 50s to 80s while it will give opportunity for the creation of many new cloths from the very finest yarns that may then compete more effectively with silk and rayon products.

It is the belief of Congressional representatives and of manufacturers that the protection asked for on the finer numbers will be granted, whatever may be determined as to the political wisdom of opening up whole schedules to general revisions.

Many New Englanders who have interests in the South are conscious that business has not been good in their plants in the sense that reasonable profits have been secured. Nor do they look for any substantial profit from the business that has come to hand in the past several weeks in the New England section. The whole textile situation is regarded by them as being excessively competitive and they do not look for any material improvement until production is either regulated through cooperative methods or restricted by more intensive competition.

The extent of the depression of last year is being made evident from week to week in financial reports of various corporations that are being made to stockholders or filed with the Massachusetts Secretary of State. The losses sustained by many of the best managed and best equipped plants attest to the severity of the trying period of 1928 in the fine and fancy cotton goods division.

It is predicted that if the tariff protection sought for the finer counts of yarns is granted by Congress before the new cotton year comes into being there will be an active demand for many fine cloths that have not been produced here in volume since the tariff law of 1922 was broken down and imports of fine broadcloths, voiles, organdies and other fine English goods became general.

THE ELMORE COMPANY
MERCERIZED
YARNS
Spindale
N.C.

Single Yarns
MERCERIZED
Licensed Manufacturer
TINTED YARNS
Bleached, Dyed, Mercerized
and Glazed Sewing Threads.
THE ELMORE COMPANY
SPINDALE, N. C.
Selling Agents
JOHNSTON MILLS COMPANY
New York: 93 Worth St. Philadelphia: Public Ledger Bldg.
Chattanooga: 805 James Bldg. Charlotte: Johnston Bldg.
READING, PA. CHICAGO, ILL.
Burke County Trust Bldg. 166 W. Jackson Blvd.
CANADIAN REPRESENTATIVE
Slaters, Ltd., 53 Yonge St., Toronto, 2, Canada

FELT
For all Mechanical Purposes
Slashers and Roller Cloth for Cotton Mills.
Felt wicks and washers for
FULL FASHION HOSIERY MILLS
Felt Sets for TEMCO Electric Heaters
Complete stock for immediate delivery
Samples and Prices Upon Request.
FIDELITY FELT COMPANY
Pike St. & Rising Sun Ave., Phila., Pa.

S. L. DIGGLE MANAGER
ACME SALES CO.
CHARLOTTE N. CAROLINA
SINGLE or PLY
Natural---Gassed---Dyed---Bleached
MERCERIZED YARNS
All Counts and Descriptions for the Knitting, Weaving and Converting Trade
DIXIE
MERCERIZED YARNS

The Yarn Market

Philadelphia, Pa., February 15th, 1929.

UP TO THE PRESENT WRITING, from all indications, the Philadelphia cotton yarn market for 1929 has developed along entirely normal lines as regards the opening of a new year. At this time there seems to be justified hope for an early improvement, but during the past month the market has gone through the usual growing pains in getting started into the new calendar period, inheriting this condition from the situation immediately following the turn of the year, as reported last month.

The first week of the month preceding this writing opened up with apparently a strong fundamental business condition, not with a deluge of business, it is true, but on the whole a healthy situation. The spinners seemed to take a strong position, in the face of an absence of demand on the part of buyers and prospects, generally speaking. Certainly, while there were few transactions of a nature to determine the market, it was evident that yarns of extra-good quality, in almost every department of the business, were in proportionately much better demand than those of the ordinary grades, and there were some mills considering seriously the installation of equipment and methods to raise the accepted quality of their products in order to put them into this more exclusive class.

The next week, however, opened with a weaker situation prevailing. The continued pressure of an inactive interest on the part of customers had its effects and was the main reason for this loss of strength. Fundamentally, the market was apparently continuing firm, but cases of granted concessions were easier to find than had been the case during the previous week. The effect of this was to lower the published values of the list, generally speaking. During this week there developed an apparent deadlock between spinners and users—awaiting either an increased demand for consumers' products, or a weakened resistance on the part of spinners in their weakened position. Considering the prospects for a month or so in advance, it was more generally felt that the first-named of these conditions would come to pass sooner than the other. As it stood, the market seemed especially sensitive to the foibles of the cotton market. The loss in strength pulled 20s/2 carded warps, for weaving, for example, down to 37 cents, according to one report. The situation as regards users' business seemed spotty; yarns for plush and men's wear seemed all right, while other numbers were not so fortunate. Combed yarns during this week were boosted, and many awaited the developments, especially in view of unusual reported buying strength on the part of the mercerizing plants.

Yarns during the next week suffered a reaction from a weakened situation in cotton, and fell off some more, and this made it harder, for the carded groups particularly, to hold their own. Weaving yarn rates again went down, 36½ for 20s/2 warps being reported, while knitting and specialty yarns seemed stronger.

Easier cotton and a continued lack of demand apparently had their influence last week also, as there was a further general tapering off of offered values. All in all, however, the market seemed optimistic, and factors were hopeful that better conditions would throw off the lethargy on the part of the buying elements. Combed yarns, incidentally, were continuing to hold their own on the higher rate level previously established. Just now, in spite of a confused price situation, comparatively few orders of consequence, and a continued firm stand of spinners, factors feel that before another month the market will swing into a much stronger condition for all concerned.

Philadelphia prices on February 15th follow:

Single Skeins

4s to 8s	31½	10s	32
12s	32½	14s	33
16s	33½	20s	35
24s	38	26s	38
30s	39½		

Two-Ply Skeins

8s	31½	10s	32
12s	32½	14s	33
16s	33½	20s	35
24s	38	26s	38½
30s	40	40s	46

Single Warps

10s	32½	12s	33
14s	33½	16s	34
20s	35½ @36	26s	39
30s	40 @41		

Two-Ply Warps

10s	33	12s	33½
14s	34½	16s	35½
20s	36	24s	38½
26s	39½	30s	40 @41
40s	47		

Frame Spun Carded Yarn on Cones

8s	30	10s	30½
12s	31	14s	31½
16s	32	18s	32½
20s	33 @33¼	22s	33½ @33¾
24s	35½	26s	36½
30s	39	40s	45
30s dbl. carded	40	30s tying in	36½ @37

Carpet and Upholstery Yarn in Skeins

8s and 9s 3-4 hard white warp twist	31
8s and 9s tinged tubes	29
8s 3-4 hard twist waste	28½

Two-Ply Combed Peeler Skeins and Warps

20s	46	@47	24s	47	@48
30s	50	@52	40s	55	@56
50s	58	@60	60s	65	@67
70s	75	@78	80s	87	@90

Single Combed Peeler Yarn on Cones

18s	43	@44	24s	46	@47
30s	50	@52	36s	53	@54
38s	54	@55	40s	55	@56
50s	58	@60	60s	64	@67
70s	74	@78	80s	86	@89

Mule Spun Carded Yarn on Cones

10s	36		12s	36½	
14s	37		16s	37½	
18s	38		20s	38½	
24s	40	@41	26s	41	@42
30s	42	@43	40s	50	@51

Mule Spun Combed Peeler Yarn on Cones

10s	43	@44	12s	44	@45
14s	45	@46	16s	46	@47
18s	47	@48	20s	49	@50
22s	50	@51	26s	51	@52
28s	52	@53	30s	53	@55
36s	56	@58	38s	58	@60
40s	59	@62			

Two Booklets by Allis-Chalmers.

The Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has published two booklets, one on the Polyphase Induction Motors, and the other on Texrope Drives. The booklet on the motors describes the construction of the Type AR squirrel cage motors and the Type ARY slip ring motors. This booklet is well illustrated. The booklet on Texrope drive describes the development of this drive and gives illustrations of its application in various industries.